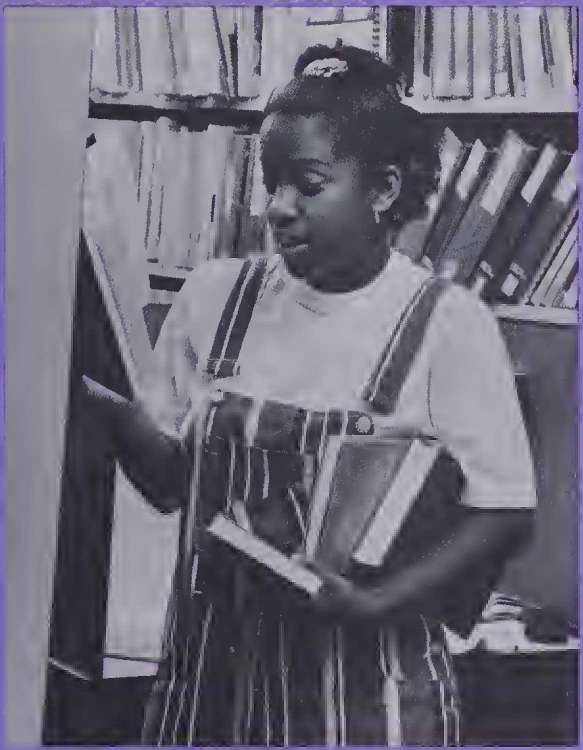
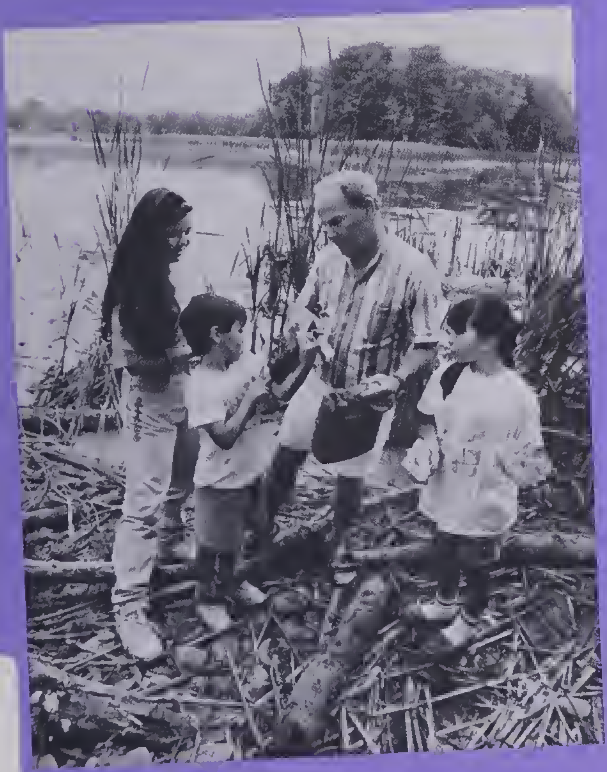
Ontario

Ministry of Education
and Training

THE COMMON CURRICULUM
GRADES 1–9





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VERSION FOR PARENTS AND
THE GENERAL PUBLIC
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A Message From the Minister

The changes that are taking place in our school system are important and exciting. Now, more than ever before, parents, students, and taxpayers want to be involved in – and better informed about – developments in education. This version of *The Common Curriculum* was produced with both of these demands in mind.

The Common Curriculum, which was distributed to educators earlier this year, is the basic curriculum document for elementary level education in our province. It emphasizes results in education – the knowledge, concepts, and abilities students should acquire.

This document, which was written for teachers and other educators, is not an ideal communication vehicle for a general audience; technical information and specialized vocabulary can sometimes obscure the basic issues and make it difficult to see the essential message. That is why this version, which sets out the document's essential ideas in non-technical language, was produced. It will make it possible for everyone with an interest in the education system to respond and get involved.

The Common Curriculum, Grades 1–9: Version for Parents and the General Public is part of a comprehensive package of accountability measures that are being put in place by this government to improve confidence in the public education system.

I hope you will find this user-friendly version interesting and informative.

Sincerely,

Dave Cooke
Minister of Education and Training
M.P.P., Windsor-Riverside

Preface

The Common Curriculum, Grades 1–9, February 1993, was written for teachers and other educators. Its technical language made it unsuitable for readers who do not have a background in education. Consequently, this version has been prepared for the information of parents and interested members of the general public. It presents, in shortened form and in non-technical language, the essential information contained in the February document – the policies and educational philosophy that form the basis of education for students in Grades 1 to 9. All information that is of relevance and interest to a general audience has been included in this version; details and explanations that are meaningful only to teachers have been omitted. Parents and other interested persons who wish to examine the version that was released in February should contact their local school or school board.

The Common Curriculum is a working document. It will be revised from time to time in response to users' comments and the changing needs and circumstances of students, their communities, and Canadian society at large. We welcome comments and suggestions from educators, parents, and interested members of the community. We have a common goal – to give our children the education that will best equip them for a complex and changing world. We should work together to meet this goal and to plan effectively and wisely for the future.

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Cette publication est également offerte en français sous le titre suivant : *Le programme d'études commun, de la 1re à la 9e année. Version grand public. 1993.*

Introduction

The Common Curriculum: *The term used to describe the new curriculum, which is designed for* ***all*** *students. The* common curriculum *emphasizes principles and methods that allow schools to accommodate the various abilities, needs, and interests, as well as the differing racial and ethnocultural backgrounds, of all the students in the community.*

In a rapidly changing world, schools must constantly adapt to meet the needs of their students and communities and of society at large. This document describes the Ministry of Education and Training's curriculum for the Province of Ontario for Grades 1 to 9, which has been designed to respond to these changing needs. It is intended to provide direction to all those who are responsible for educational programs. Ultimately, its aim is to enable school boards and individual schools to design programs that meet local needs.

The curriculum in this document has the following key features:

1. **It focuses on results – commonly referred to as "learning outcomes" by educators – rather than goals or the length of time to be spent on specific areas of study.**

The results, or "outcomes", of students' learning (described in later sections of this document) are the knowledge, skills, and values that students are expected to have developed at certain stages of their schooling. They describe what students should know, should be able to do, and should value as a result of their learning.

2. **It is designed for all students; that is, it recognizes that a school's programs must accommodate the various abilities, needs, and interests, as well as the differing racial and ethnocultural backgrounds, of all the students in the school.**

It is important that the education system be fair and that it give all students equal opportunities for learning and equal options for planning their futures. In addition, studies have shown that students do their best when they are challenged and motivated to reach for high standards. Students, therefore, will not be grouped according to ability; each class will include students with a wide variety of abilities, experiences, and needs.

3. **It is based on an "integrated approach" to learning; that is, it emphasizes connections and relationships – among ideas, among people, and among things in the real world.**

   As a result of this emphasis, subject matter and outcomes are organized into broad areas of study rather than traditional subjects. These broad areas of study, however, include all the traditional subjects and emphasize the relationships among them.

4. **It requires that school-board and school staff, students, and the community work together to develop programs that effectively meet local needs.**

   There are many different ways of achieving the outcomes set out in this document. Although all schools must ensure that students achieve these outcomes, they may organize their programs in ways that suit their particular requirements and circumstances.

5. **It provides a clear basis for evaluating student progress and program effectiveness.**

   By describing in detail the results that students are expected to achieve, the common curriculum will allow teachers to evaluate student progress more precisely. Effective evaluation will in turn make it possible for them to adapt programs and methods of instruction to better meet the needs of individual students.

Education in Ontario is founded on a commitment to accountability, excellence, equity, and partnership.

Accountability: We must ensure that we are achieving the outcomes of the common curriculum and that we are informing students, parents, and other interested parties about how well our school system meets established educational standards.

Excellence: We must aim for the highest standards of achievement in our schools. We must ensure that all students reach their full potential and are well prepared for life in our rapidly changing world.

Equity: We must act in the interest of social justice by removing biases in school policies and practices so that all students will have an equal chance to achieve their potential.

Partnership: We must make our schools an essential part of the communities they serve, and recognize that education is a shared responsibility among the ministry, teachers, students, parents, school trustees, and business, labour, and other organizations.

Education in a Changing World

When Canada's economy was largely based on the use of its natural resources, education was only one of several avenues to success. As we become more and more economically dependent on service and high-technology industries, education is becoming increasingly important; in fact, it is already difficult to play a productive role in our society without it. It is therefore essential that we encourage and help our young people to get the kind of education that will enable them to make the most of the opportunities available to them.

As well as economic changes, we are seeing changes in the structure of the family and in the composition of the population. The information explosion, the impact of new technologies, the increasing fragility of the environment, the growing interdependence of societies throughout the world, and concerns about changes in long-established values and institutions make it necessary to rethink some of our traditional approaches to education. In short, we need a new curriculum – one that can evolve as our society evolves.

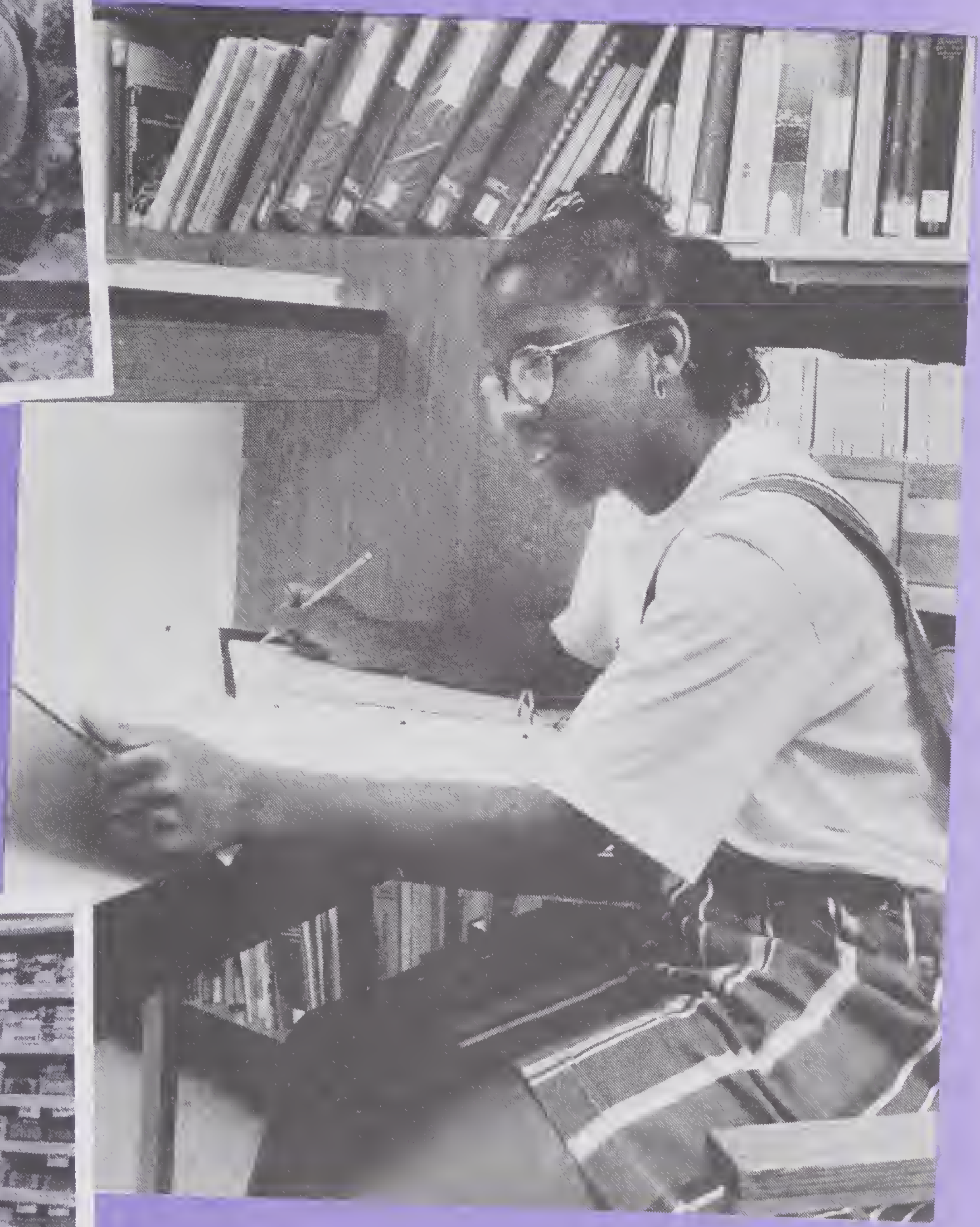
In response to the changes taking place, many adults are going back to school to continue their education. Today's and tomorrow's citizens will need to be lifelong learners, able to respond to the challenges of the future. They will need to be able to use many different learning methods, both old and new. They will need to see education as a continuing process in their lives – a way of solving problems creatively and planning effectively for the future.

This document gives the policy direction for designing educational programs that meet the needs of our changing society. Part 1 outlines the educational principles that underlie the ministry's approach to curriculum. Part 2 describes the ten essential outcomes, or results, that form the basis of the entire curriculum and all the other, more specific outcomes presented in the document. Part 3 describes the four core program areas and the overall outcomes related to each area. Part 4 outlines the more specific outcomes students should achieve by the end of Grades 3, 6, and 9, for each of the four core program areas.

Ontario is fortunate to have dedicated teachers who are actively involved in creating the kind of schools we will need in the twenty-first century. This document was developed with their help; in many respects, it describes what is already being done in some school boards.

Principles of Education for Grades 1 to 9

PART ONE



PART ONE

Principles of Education for Grades 1 to 9

The view of curriculum described in this document is based on the principles of education outlined below.

LEARNING

Learning is not a passive process of soaking up information; it is an active process that involves a constant search for meaning.

1. Learning involves developing values as well as knowledge and skills.

When people talk about values, they are talking about the things that are important to them – the beliefs that guide their behaviour and give meaning and purpose to their lives. Our personal values influence our attitudes and decisions, and affect our relationships with other people. The values of a society shape the values of individuals and are in turn shaped by them. The values of a society inevitably influence its laws, customs, and institutions.

Children and young people develop their values and attitudes through the way they are brought up. They are strongly influenced by parents, siblings, peers, the school, and the media.

Although schools do not play the primary role in developing children's values, they have a clear responsibility to deal with the values that are part of the curriculum. Schools cannot be neutral about values. The values that are at the heart of the curriculum described in this document are those that most Canadians consider essential to the well-being of their society. Common to many faiths and cultures, these values reinforce democratic rights and responsibilities. They are based on a fundamental belief in the worth of all persons and a recognition of the interdependence of human beings and the environment.

Students need to develop a positive sense of self and respect and concern for others. It is also important for students to develop a sense of belonging in the community, a sense of social responsibility, a commitment to democracy and human rights, and a love of learning.

An education based on democratic principles ensures not only that students are exposed to different points of view, but also that they learn to recognize biases as they develop their own values.

2. Learning means asking questions and making connections.

Learning is not a passive process of soaking up information; it is an active process that involves a constant search for meaning. We find meaning in the experiences of daily life by looking, listening, asking questions, investigating and experimenting, and relating what we discover to what we already know. Ideally, the curriculum should encourage this kind of constant inquiry and help students see the connections between people, things, events, processes, and ideas.

3. Learning requires effort and self-discipline.

Although we learn better by talking and working with others, other people cannot do our learning for us; the effort and self-discipline needed for learning must come from us. Teachers need to encourage students to set high standards for themselves and to take responsibility for their own learning and progress. Whatever their abilities, students need to see that hard work pays off, both at school and in the business world. Teachers must also help them to see that sustained effort is the key to success, self-esteem, and future enjoyment.

4. Learning builds on existing knowledge, skills, and values.

Learning is usually a gradual process, an accumulation of experiences. Since people have different experiences, school programs must take into account the range of knowledge, skills, and values that children from different backgrounds bring to school. In all cases, students learn best when they are encouraged to stretch themselves a little further than their current level of skill and understanding.

5. People learn in different ways and at different rates.

Each student must be treated as a unique individual, with his or her own particular ways of learning. Teachers must keep track of their students' progress and adjust their teaching methods as necessary to meet their students' individual needs. All students should be given the time and the resources they need to reach their potential.

TEACHING

1. Teachers need to use a variety of methods to reach different kinds of students.

Teachers must be versatile because every classroom will include students with a wide range of backgrounds, abilities, interests, and learning styles. Class, small-group, and individual learning activities will all remain a part of their repertoire, but it is particularly important that teachers use methods and activities that encourage students to work together. Such methods teach students to respect other students' backgrounds and to value their unique contributions. All students will benefit, both socially and intellectually, from the experience of working in groups in an atmosphere of co-operation.

Integrated Curriculum:

A curriculum that emphasizes connections and relationships among ideas, people, and things – and among traditional subjects. In an integrated curriculum, *subject matter and outcomes are organized into broad areas of study rather than traditional subjects.*

2. Teaching methods should encourage students to ask questions and make connections.

Students learn best when they are encouraged to be curious about their world. Teachers must, therefore, help them to ask relevant questions and to look for the answers in appropriate ways. Students also need help to see the connections between the ideas they come across in different areas of their program, particularly ideas that relate to the family, their peers, the community, the environment, and society. All teaching should be based on a view of life as an integrated whole, in which events, people, processes, and ideas are interrelated.

3. Integrated teaching methods are best developed through discussion and experiment involving all members of the school community.

Teachers must be able to investigate, test, and assess various teaching methods, and to draw on each other's resources and those of the community. Principals, non-teaching staff, students, parents, and other interested parties should also be involved in finding creative ways of developing an integrated curriculum. Decisions about how and when to use specific teaching methods should be based on how well these methods help students achieve the outcomes of the common curriculum.

CURRICULUM

1. Students learn from all their experiences in school.

Curriculum includes: program content and all the activities that flow from it; learning resources; teaching methods; discipline and evaluation procedures; and the ways in which people in the school behave towards each other and work together in the course of school activities. Principals and school staff must continually review all aspects of the curriculum to ensure that it encourages every student to reach his or her potential.

2. An integrated curriculum is necessary to prepare students for the modern world.

In the world in which students will have to work and function, different areas of knowledge and different components of reality (the environment, people, events, processes, etc.) do not exist in neat, separate compartments; instead, they are found together and are connected in many complicated ways. This is why an integrated curriculum, which reflects this reality and emphasizes the connections within it, is so important. Investigating the nature of reality in the classroom is one way of preparing students for life after school.

Students also need to acquire problem-solving skills that they can apply to a wide variety of situations. The shift in emphasis in the curriculum to more integrated programming and active, inquiry-oriented learning is intended to equip students for life in a changing world.

3. Curriculum must be adaptable.

Curriculum must respond to students' changing needs and circumstances. In fact, some degree of flexibility must be built into every program, or it may soon become obsolete. It is this rapid pace of change in all areas of life that makes it important for teachers to develop students' thinking and problem-solving skills. These skills will prepare students for lifelong learning.

4. The curriculum must be free of bias and reflect the variety of people that make up our society.

Students' self-image and their attitudes to others are affected both by what is taught and by how it is taught. Students are entitled to have their personal experiences and their racial and ethnocultural heritage valued, and to live in a society that upholds the rights of the individual.

The curriculum must present an accurate picture of the world in which students live and will work. It must, therefore, reflect the variety of groups and cultures in Canada and Ontario and take into account the contributions and accomplishments of men and women of all races, religions, ages, abilities, and backgrounds.

5. The strengths, needs, and backgrounds of individuals must be recognized.

Effective teaching and learning methods and appropriate resources will help every student meet the requirements of the common curriculum to the best of his or her ability. At the same time, students need a range of learning activities through which they can develop their personal strengths and pursue their own particular interests.

***Assessment:** The collection of data about student achievement, using a variety of means and procedures.*

ASSESSMENT AND EVALUATION

1. Assessment of student learning is an essential part of the Ontario curriculum and effective classroom practice.

Assessment must be a continuing process in which the individual student and his or her peers, teachers, and parents all play a significant part.

Teachers will use evaluations to judge how well their programs and methods are working and to guide them in making the changes needed to enable all students to achieve their potential. The results of evaluations will be communicated to parents in student progress reports.

2. Teachers need to use a wide variety of appropriate assessment methods.

No one assessment method could do justice to the breadth, depth, and complexity of the learning outcomes of the common curriculum. Assessment methods must take into account all aspects of student learning and be appropriate for the age and maturity of the students. The use of a variety of methods also gives students more opportunities to demonstrate their progress.

***Evaluation:** The making of judgements or decisions on the basis of the data collected in the assessment process.*

3. Evaluating and reporting student achievement is the job of the teacher, who must consider the special needs of individual students and work closely with them and their parents.

Evaluation is a complicated process that requires the professional judgement, knowledge, and skills of the teacher. Teachers must match their assessment methods to the particular learning activity that is being evaluated. In addition, they must tailor their methods to the individual student. This means taking into account the student's social

Testing: *One means of collecting assessment data. (A test measures achievement at a specific point in time.)*

and cultural background, as well as his or her particular needs and abilities. It is important for teachers to talk to students and their parents when making decisions about student progress and programs.

4. The evaluation of school programs should lead to their improvement and should be based on school-board and provincial standards.

Teachers and principals will judge the overall effectiveness of programs by evaluating students' results against the performance of all the students in the program in the school, in other schools under the same board, and in relation to provincial benchmarks. This process will ensure that achievement of standards is monitored and reported as objectively as possible. The information obtained will be used to improve programs and promote high standards in all areas of learning and teaching.

PART TWO

Ten Essential "Learning Outcomes" (Results)

Ten Essential "Learning Outcomes" (Results)

School programs and activities at all grade levels should enable all students to achieve the ten essential outcomes, or results, outlined below. These outcomes apply to all subject areas and are therefore the responsibility of all teachers. For example, the goal of using language to think, learn, and communicate effectively is to be pursued in all program areas.

The results, or "outcomes", of students' learning are the knowledge, skills, and values that students are expected to have developed at certain stages of their schooling.

While students will continue to build on these essential outcomes in later grades and throughout their lives, by the end of Grade 9 they should be able to:

- function effectively in everyday life; and
- undertake appropriate further studies of their choice.

The ten outcomes are not listed in order of importance; all are considered essential.

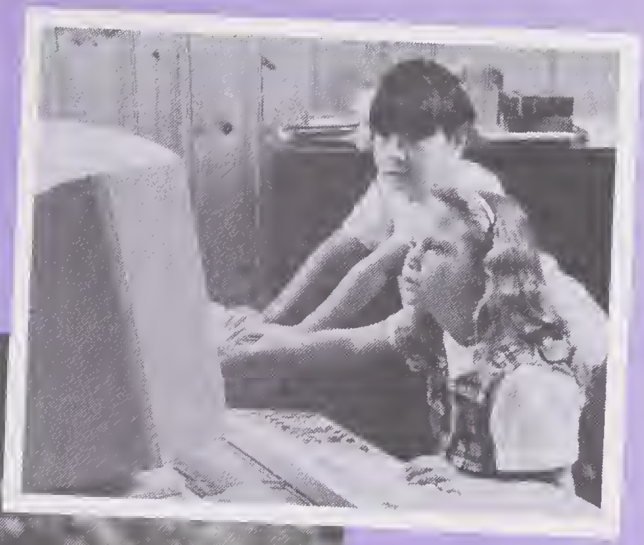
By the end of Grade 9, students will:

- be able to use language to think, learn, and communicate effectively;
- be able to use mathematical knowledge and skills effectively;
- be able to apply scientific methods and knowledge in understanding the world, solving problems, and making responsible decisions;
- be able to use a wide variety of technologies effectively;
- be able to apply historical and geographical knowledge in analysing world events and understanding different cultures;
- show a commitment to peace, social justice, and the protection of the environment in their own community, Canada, and the world;
- have the skills needed to get along well with other people, show respect for human rights, and practise responsible citizenship;

- find satisfaction and purpose in work and learning, and plan properly for entering the work force or continuing their education;
- appreciate, enjoy, and participate in the arts;
- build healthy lifestyles and relationships.

Developing this knowledge, these skills, and these values is the main purpose of the entire school program to the end of Grade 9. Although some students may need more time and more help to achieve these outcomes than the majority of students, these goals are valid and realistic for the majority of Ontario students.

Four Core Program Areas



Four Core Program Areas

Since the common curriculum emphasizes connections among ideas, people, and things in the real world, it is organized into broad program areas rather than narrowly defined subjects such as French or history. However, all the traditional subjects are included in these program areas, which stress the many connections among them.

The four core program areas are:

- Language
- the Arts
- Self and Society
- Mathematics, Science, and Technology

Each area contributes to the achievement of the ten essential outcomes through its own particular learning activities. Specific outcomes for these learning activities are described in the sections that follow.

Although the organization described in this document is recommended, schools may organize programs differently to achieve the stated outcomes. The emphasis should be on designing programs that meet students' needs and reflect local circumstances.

School programs must enable students to connect what they learn in school with their own experience.

School programs must enable students to connect what they learn in school with their own experience. The curriculum must therefore show sensitivity to the racial, linguistic, and ethnocultural composition of the student population and reflect the circumstances of students' lives. The school must develop its curriculum in close co-operation with the community it serves.

Some students may have difficulty in achieving the outcomes outlined below; schools need to provide extra time and support services for such students.

LANGUAGE

Language is essential to our emotional, intellectual, and social development. Language is also an important part of our personal and cultural identity.

The goal of all language teaching in Ontario schools is to help students learn to use language well for a variety of purposes. Good language skills help students communicate at school as well as in other situations and are essential for lifelong learning. Language learning should also enable students to develop a positive sense of their personal and cultural identity, and lead them to appreciate languages and cultures other than their own.

Language and Learning

Our ability to use language develops with practice. At first, we use language mainly to communicate our needs. As we mature, we build on our ability to communicate, and start to use language for learning and thinking. Students need to develop this second type of language skill to grasp ideas and express themselves in writing and in more formal kinds of speech. As learners progress, they need to be able to handle more and more complex ideas.

Among the language skills students develop is the ability to talk, write, and think about language itself. Thinking about language and building an understanding of how it works helps students appreciate the many uses of language and the importance of developing effective language skills. It also helps them appreciate their own language, as well as the various languages they come in contact with. Students who have learned to value language as a tool for communication and cultural expression are motivated to improve their use of language and to learn other languages. Such students are also able to learn other languages more easily and more effectively.

Students develop the ability to use language for learning and thinking by obtaining information, interpreting it, and talking about their interpretation with others. To see the information they gather as meaningful, students need not only to connect it to their own experience, but also to talk and write about it in their own words. Exchanging ideas with other people will help students analyse the issues raised in a particular text, as well as help them appreciate the text as a piece of writing.

The texts and other materials students work with should reflect the cultural diversity of the students and their communities in a bias-free manner. Teachers and school staff must ensure that the classroom and the school are places where the students' own language and cultural experience are valued.

Language is important to every aspect of learning. Therefore, opportunities for students to improve their language skills must be provided in all areas of the curriculum and in all grades. In every curriculum area, students need to learn how to listen with a purpose, to talk about topics in a meaningful way, to read and understand a wide variety of print and non-print materials, and to write for a variety of purposes.

Literature and the Curriculum

Although literature now takes its place alongside a variety of multimedia "texts" in education, it continues to play an important role in developing language and thinking skills, as well as values. Here are some of the reasons for including literature in the curriculum:

- Literature allows students to feel emotions and live through experiences in a "safe", unthreatening way. It allows them to "play" with new ideas and examine moral values without feeling pressured. Literature, then, not only promotes students' creativity and intellectual growth, but also contributes significantly to their moral development.
- Literature plays a vital role in the development of language and literacy. Poetry, drama, and the many varieties of prose offer students a rich range of language models, and at the same time demonstrate the power of language and its many possible uses. Literature is also a rich source of vocabulary, idioms, and ideas for students' own writing.
- Literature helps develop students' understanding of their own as well as other cultures. Literature acquaints students with the traditions and attitudes of other cultural groups, and so helps them see things from many different points of view. Literature can also show students what it is like to be a victim of prejudice, and so lead them to a greater respect for the rights of others.

First- and Second-Language Programs

Effective language programs build on the social, cultural, and linguistic experiences students already have when they start school. Young people in Ontario have a variety of first languages. It is important for both parents and educators to understand the role that the students' first language plays in the development of literacy at school. The students' competence in the first language is the foundation on which literacy in the language of instruction and other languages is built.

Students whose first language is different from the school's language of instruction need opportunities to become as proficient in listening and speaking, reading, and writing in the language of instruction as those whose first language is English or French. Research indicates that students need about two years of exposure to English to communicate effectively in social situations. They need much longer – between five and seven years – to be able to use English in dealing with complex ideas, and to do as well in school as native speakers. In the meantime, they need meaningful language-learning experiences and special support services.

Learning a second language can be of great benefit to students. Provided they maintain their first language, students who learn another language improve their ability to read and write, think more clearly, appreciate the need for expressing themselves clearly, and find it easier to learn additional languages. Society also benefits: second-language learning promotes understanding between cultures and develops multilingual citizens who can help Canada and Ontario compete on the world market.

Language and the Importance of Multi-Media "Texts"

The development of literacy is a central aim in education. To function effectively in today's and tomorrow's society, students must be literate not only in the traditional sense, but also in the wider sense that includes literacy in the various technological media used for communication. Since these forms of communication are increasingly used to find, organize, and communicate information, the traditional language skills – reading, writing, speaking, and listening – must be expanded to include such print materials as graphics and pictures as well as the non-print multi-media "texts" of television and film. Therefore, references to "text" in the outcomes listed for language include both print and non-print materials. Similarly, references to reading, writing, speaking, and listening include skills that are not usually associated with these activities; for example, reading includes viewing, writing includes various forms of representing, speaking includes dramatizing, and listening includes responding.

General Outcomes

Students will:

- use language effectively for a variety of purposes and in a variety of situations;
- use language to think and learn in a variety of curriculum areas, on their own and in collaboration with their peers;
- use language to make sense of their experiences and to share them with others;
- use language correctly and in ways that are appropriate for specific purposes, audiences, and contexts;
- be able to produce practical and imaginative works in a variety of media, on their own and in collaboration with their peers.

THE ARTS

The arts speak to our emotions, imagination, and intellect, and throw new light on our experiences. From a wider perspective, they offer a picture of what people have felt and thought over the ages, enabling us to see that people in the past were much like ourselves and often expressed similar ideas and feelings. The arts also show us that people of all races and cultures have many interests and concerns in common. In a world of rapid and widespread change, study of the arts can therefore help students develop a sense of connection with the past and with people of other races and cultures.

Dance, drama, music, and the visual arts express our ideas, values, and concerns, and can thus be seen as valuable tools of expression and communication. It is important that students learn to express their ideas effectively through the arts.

In learning to understand the arts as a means of communication, and in creating their own art works, students develop their ability to communicate. The skills and artistic judgement that students develop through the study of the arts can also be applied in many other areas of life.

Various approaches to the study of the arts are possible. In the following outline, the arts are described in terms of their form, meaning, and function, and the creative process through which a work of art is produced. These aspects are, of course, interrelated, although they are discussed here separately.

Understanding Form in the Arts

People often distinguish between form and content in the arts. The term "form" includes all the means used by the artist to express what he or she intends to communicate.

The arts have many aspects of form in common, such as pattern, rhythm, and overall structure. For example, in the visual arts, form may be the result of combining patterns of lines, textures, or colours. In music, form is created from patterns of sound. In dance, it results from patterns of movement. In drama, the form may grow out of structured sequences of events.

In studying form in the arts, students learn to identify various aspects of a work of art and ways in which those aspects contribute to the whole work. They also learn to see that the arts are interrelated and that an understanding of form in one art is often useful in understanding form in another.

General Outcomes
Students will:

- recognize and be able to describe the form and aesthetic aspects of works of art, as well as of other objects and materials;
- be able to discuss the use of techniques and ideas in each of the arts, using appropriate terms.

Exploring Meaning in the Arts

Students need to learn how to identify and describe the effect of a work of art, and to understand the ideas it communicates. Students should also learn to evaluate both the ideas and the effectiveness of the work of art. In addition, students should be aware of their own responses to works of art, as well as the responses of others.

General Outcomes
Students will:

- be able to describe their responses to and interpretations of works of art;
- be able to discuss and evaluate the responses of others;
- recognize and support excellence and originality in the arts;
- be able to express ideas and feelings through the arts, and appreciate the expression of ideas and feelings in the works of others.

Understanding the Function of the Arts

For the artist, the work of art is a means of expression and communication. For the audience, works of art can play many roles. They appeal to the senses, the emotions, and the intellect at the same time. They enrich our experience and help us to see familiar things in a new way. They also give us insight into different places, times, and cultures.

In the study of works of art, the teacher should focus not only on the variety of artistic forms and themes, but also on the shared characteristics of the works. Students can thus begin to understand the important role of the arts in fostering communication and a sense of connection among people of all cultures.

General Outcomes
Students will:

- grow emotionally and intellectually through their study of the arts and gain insight into their own lives;
- acquire a new understanding of other people, places, times, and cultures, and recognize what is universal in human experience.

Communicating Through the Arts

Students need to know how works of art are produced, and the best way to learn that is by creating their own. As they become familiar with the materials and techniques involved, they will develop a deeper understanding of the achievements of artists whose works they are studying. The practice of the arts will thus give meaning to the study of theory.

General Outcomes
Students will:

- be able to use a variety of materials, concepts, and techniques in each of the arts to create their own works of art;
- be able to explain the connection between the form and meaning of their works;
- be able to set personal goals in the arts and evaluate their progress.

SELF AND SOCIETY

Core Program Areas: *The term used to refer to the four broad areas of study into which the integrated curriculum is organized. The four core program areas are: Language; the Arts; Self and Society; and Mathematics, Science, and Technology.*

The Self and Society program area combines several traditional areas of study, including business studies, family studies, geography, guidance, history, and physical and health education. However, aspects of these traditional subjects are also explored in other core program areas.

Students begin by examining their own goals, abilities, and needs. Important themes include their physical, emotional, and mental development, their relationships with family and peers, and the need to take responsibility for their own well-being and that of others.

A central goal of the program area is to help students understand their society and their possible roles in it, now and in the future. In examining various aspects of society, students explore the relationships between government, labour, and business, and the special demands of the "information age".

As students learn about other societies, they come to understand and respect the differences between people. They investigate various social, political, economic, and environmental systems, and the ways in which human beings depend on each other.

They study change and examine the ways in which changes taking place around them will affect their lives, both as individuals and as members of the world community. They develop the skills and attitudes they will need to deal successfully with change in the future. These include the ability to adapt to different jobs, the willingness to continue learning throughout one's life, the ability to deal with other people, and the skills needed to solve problems creatively. They also develop technological skills and the attitudes and decision-making skills needed to become successful entrepreneurs.

The Self and Society program area is organized under five broad topics:
- Meaningful Participation: The Individual in Society
- Understanding Diversity
- Understanding Natural and Human-made Systems
- Functioning in the Age of Information
- Understanding and Managing Change

Meaningful Participation: The Individual in Society

To play a meaningful role in society, students need to understand themselves and have a clear idea of what they want to do with their lives. They need to be able to set goals and determine their needs for further learning. They should be encouraged to value all kinds of work, and be made aware of the preparation required for specific careers. They need up-to-date information on educational and career opportunities and on the laws, programs, and organizations that exist to help people in the workplace.

As part of learning to take responsibility for their lives, students need to learn how to stay healthy and active and have positive relationships with others. They need to learn, through concrete examples and positive role models, how individuals can contribute to the community and how to translate their own ideas into action.

Students need learning activities that will help them to predict conditions in the future and to plan for them intelligently. They should also have opportunities to accept challenges and take risks, and to learn from both their successes and their failures.

General Outcomes

Students will:

- be able to set appropriate goals for themselves and make informed decisions about their future education and career;
- recognize the ways in which global and environmental factors and issues may affect their career and lifestyle opportunities;
- make responsible personal choices about health, lifestyle, and relationships;
- be able to resolve conflicts in a peaceful and co-operative way;
- contribute to social change through democratic action.

Understanding Diversity

An important aim of education is to give students the knowledge, skills, and values they will need to help create and preserve a just society.

A positive sense of self and concern for others are the basis from which students develop respect for other people's rights, attitudes, and lifestyle. From this basis they learn to find common ground and work co-operatively with people from many different walks of life. The study of their own historical, cultural, and linguistic background helps students understand their own heritage, while the study of other cultures helps them value the contributions that diverse groups have made to Canada and the world.

The study of history and geography helps students understand, among other things, the roots of social movements and political conflicts. It also helps them see how people's lives have been, and often still are, shaped by such factors as gender, race, physical ability, social class, and religion.

General Outcomes

Students will:

- know about and value the contributions of people from a wide variety of cultures, races, religions, and socio-economic backgrounds in their community, Canada, and the world;
- understand and appreciate the similarities and differences among individuals and groups;
- understand the influence of cultural and family traditions on individuals and groups;
- know about the history of Canada and understand the points of view of the various groups who played a part in that history;
- understand how geographic features, climate, and natural resources affect the choices people make about where they live and work;
- respect the rights of others and be willing to carry out their responsibilities as citizens.

Understanding Natural and Human-made Systems

We have traditionally tried to make sense of our world by grouping and describing related things in an organized way. Such groupings of interrelated things are known as "systems". The world itself may be seen as a large system composed of many smaller, complex, interrelated systems. Some of these systems have developed naturally – the environmental system, for example; others have been designed and developed by humans – various technological systems, for example.

By investigating various kinds of systems – environmental, social, economic, political, cultural, and technological – students begin to see the many complex and interdependent aspects of our world in a coherent way. They also examine the many ways in which people's lives are affected by both natural and human-made systems.

General Outcomes
Students will:

- understand the relationship between Canada's land and its people;
- understand how people depend on each other within a society and how societies around the world depend on one another;
- recognize power relationships in groups, society, and the international community, and assess their causes and impact;
- understand Canada's relationships with other countries;
- understand the role of business, industry, labour, and government in their community and Canada;
- understand the ways in which culture affects ideas and behaviour;
- understand the influence of technological changes on education, work, and leisure.

Functioning in the Age of Information

New methods of gathering, storing, processing, and transmitting information have contributed to the so-called "information explosion". Vast amounts of information are now available on any topic. Because we need many kinds of information to function successfully in both our private and working lives, students need to develop skills that will enable them to handle information effectively and responsibly.

General Outcomes
Students will:

- know how to find, organize, and evaluate information from a variety of sources;
- understand the ethical and legal implications of information use and develop ethical practices;
- understand information technology and be able to use it appropriately.

Understanding and Managing Change

Our world is changing in all areas of life. To deal successfully with these changes, students need to understand their causes and effects. They need to develop attitudes and skills that will allow them to be flexible and to adapt to change easily and constructively. Such attitudes include the willingness to continue learning, to plan for change, and to shape events through participation in the life of the community.

General Outcomes
Students will:

- understand the causes of change and its effects on individuals, families, and institutions in Canada and the world;
- understand the relationship between human activity and environmental changes;
- deal with change effectively and confidently.

MATHEMATICS, SCIENCE, AND TECHNOLOGY

Mathematics, science, and technology enable us to understand and manage the natural and human-made worlds. They are related areas of study, and the Mathematics, Science, and Technology program will help students see the many connections between them, particularly as they are applied in various areas of everyday life.

Mathematics is used in many fields, including the sciences, technologies, and social sciences. For example, the ability to handle statistics is important to social planning, a knowledge of geometrical principles is essential to map-making, and measurement is an important skill in construction work. We use mathematics in many kinds of work and in our daily lives.

One of the aims of the common curriculum is to enable students to make informed career decisions. This is particularly important in fields related to mathematics, in which girls have not traditionally been encouraged to take an interest. As a result of their studies in this program area, both girls and boys will be aware of the work/career opportunities in mathematics, science, and technology, and will be able to assess these opportunities in relation to their abilities and without being hindered by occupational stereotypes. Students will also become familiar with the changes that the new technologies have brought about in the workplace, both through their studies and through opportunities to observe people at work in the community.

By applying mathematical principles in solving problems and in other activities, students develop the knowledge and skills they will need in a technological society. Activities in mathematics will involve: counting and arithmetic; inquiry and problem solving; geometry; measurement and algebra; and data management and probability. Students will do calculations mentally as well as on paper, and will also use tools such as calculators and computers. They will learn how to choose appropriate methods for different situations. Students will need to be able to use mathematical language, models, and symbols correctly, and to display, communicate, and interpret numerical and algebraic information in text, tables, graphs, and symbols.

Besides being a body of knowledge and theory about the natural world, science is a set of principles or methods for investigating and explaining aspects of this world. These theories and methods are constantly being re-evaluated and should not be considered final. Students will be made to see this aspect of science as a challenge rather than a limitation. Students will also have opportunities to see that scientific study can inspire a sense of wonder and respect for life and the environment.

The science curriculum covers several areas, including life science, earth and space science, and physical science. It provides all students with skills and information about the natural world that they can use in everyday life, and it prepares them to participate in a society in which science will play an important part. Students must be able to use scientific language, models, symbols, methods, and equipment in their work. They must also be made to realize that scientific investigation has ethical implications. It often involves making decisions that have consequences for the environment and the welfare of humankind, and must therefore be conducted responsibly.

The study of technology focuses on the design and function of products, processes, and systems that help us adapt to the natural environment. Technological activity involves applying mathematical and scientific knowledge and skills to everyday problems and situations. Younger students learn about technology by exploring through play. In later grades, students use technology to solve real problems or to meet imaginary challenges.

Technological competence is becoming more important in the workplace and in everyday life. Students need to understand many different kinds of technology, including information technology, and to know how to use them appropriately. They also need to be aware of and concerned about the effects of technology on society and the environment.

The Mathematics, Science, and Technology program area covers four broad topics:

- Understanding Models, Theories, and Perspectives
- Understanding Systems and Structures and Their Functions
- Investigating Interrelationships and Change
- Inquiring, Reasoning, and Reporting

Understanding Models, Theories, and Perspectives

Students should know about and understand diverse theories, models, and attitudes related to mathematics, science, and technology. They also need to relate these various views and models to the societies and cultures in which they occur. Learning to see things from different points of view will be useful to students in a world in which people in widely differing circumstances are increasingly dependent on each other.

General Outcomes

Students will:

- know how to work with models and theories representing the natural and human-made worlds;
- be able to use the languages, models, symbols, and methods of mathematics, science, and technology accurately and appropriately;
- know how to conduct an investigation honestly and objectively;
- know how to analyse and evaluate their own views and those of others;
- understand and appreciate the contributions of Canadians and other people to mathematics, science, and technology.

Understanding Systems and Structures and Their Functions

Learning about systems and structures enables students to understand the world as a whole by exploring its interconnected parts.

General Outcomes

Students will:

- know how to safely use a variety of materials, tools, and processes to conduct investigations;
- know how to design and build their own products, processes, and systems, and report on these activities;
- be able to analyse and evaluate products, processes, and systems;
- use creative and critical thinking skills and bring a disciplined approach to their investigations, problem solving, and design work;
- understand and be able to use ideas and skills associated with systems and processes;
- be able to identify and describe aesthetic qualities in products, processes, and systems, and incorporate these qualities in their own creations.

Investigating Interrelationships and Change

The natural and human-made environments are not separate and distinct; they are connected in many complex ways. The links between systems result in further connections and relationships – for example, whatever happens in one area of life has an effect on many other areas. Being aware of this interdependency helps students see how mathematics, science, and technology relate to social, economic, political, and environmental issues and concerns. Students learn about relationships and change as they investigate causes and effects, and explore the concepts of pattern, interconnection, balance, and variety.

General Outcomes
Students will:

- understand the ways in which mathematics, science, and technology are interconnected;
- understand the ways in which mathematics, science, and technology shape and are shaped by various societies and cultures;
- know how to explain and evaluate relationships between people and the environment;
- show concern for living things and ecosystems, and be motivated to protect the environment;
- be able to consider careers in mathematics, science, and technology in relation to their abilities.

Inquiring, Reasoning, and Reporting

To be able to apply the principles of mathematics, science, and technology, students need to be able to think and communicate effectively.

General Outcomes
Students will:

- be motivated to ask questions, and know how to look for answers and talk about their findings;
- be able to use a variety of methods – including information technologies – to gather, analyse, and process information and to communicate their findings;
- be able to use appropriate methods of inquiry and design;
- be able to solve problems in various ways;
- be able to make decisions responsibly and evaluate the results.

Learning Outcomes (Results) for Grades 3, 6, and 9

PART FOUR

Learning Outcomes (Results) for Grades 3, 6, and 9

The general outcomes, or results, for each program area were given in Part 3. Part 4 describes the more specific outcomes that have been developed from these general outcomes. In all program areas, the general outcomes are listed, in boldface type, above the specific outcomes to which they relate.

Whatever their abilities, students need to see that hard work pays off, both at school and in the business world.

Although the specific outcomes listed must be achieved to some extent at three specific stages in the school program – at the end of Grades 3, 6, and 9 – they are not necessarily completed or dropped at the end of these stages. Students continue to pursue many of the outcomes listed for an early stage at progressively more advanced levels and in more complex contexts throughout the school program. In reading the outcomes for Grade 6, for example, readers should keep in mind that these outcomes are achieved ***in addition to****, rather than* ***instead of****, those listed for Grade 3, which continue to be developed at a more advanced level when appropriate.*

OUTCOMES (RESULTS) FOR LANGUAGE

The principles of first- and second-language learning outlined here summarize important information about language learning that is helpful for understanding the specific outcomes. The principles emphasize that children's language development and competence begin before they enter school, continue throughout life, and are influenced by the social setting from which they came and in which they live. No matter what their background or level of language development when they start school, students should have equal opportunities to develop their language skills.

In a diverse society such as ours, it is particularly important that students be aware of the role that language plays in shaping personal and cultural identity. For this reason, all the outcomes for language learning described in this document emphasize the development of language that students can use to think, learn, and communicate in a linguistically and culturally diverse society.

PRINCIPLES OF FIRST- AND SECOND-LANGUAGE LEARNING

1. Listening, speaking, reading, and writing are equally important. These skills are connected, and the student's progress in one skill influences and is influenced by development in the other skills.
2. Talking or writing can help students learn just as much as listening or reading can.
3. Talking to or writing for an audience helps develop language proficiency.
4. Students are most likely to develop language competence and thinking and social skills when they use all four language skills to communicate; that is, students need opportunities to use their language skills for real purposes and in real situations in addition to the more academic contexts traditionally encountered in the classroom.
5. Students are more likely to learn correct language use, punctuation, and spelling by reading and writing than by learning rules in isolation.
6. All students pass through the same stages in developing their language skills, but may differ in their pace and ways of learning.
7. Language, culture, and identity are closely linked. A program that respects and supports the student's racial, cultural, and linguistic background helps the student develop a positive sense of self and in so doing motivates him or her to learn.
8. First-language literacy helps second-language development.
9. Students who learn in a setting in which their diverse cultural and linguistic experiences are recognized, develop positive attitudes towards minority languages and communities.
10. Knowledge of a second language helps students appreciate the value of other languages and cultures, and deepens their understanding of the role of language and culture in society.

FIRST-LANGUAGE OUTCOMES

The outcomes for first-language learning are listed under "Reading", "Writing", and "Listening and Speaking". It should be emphasized that these are interrelated language skills, and this organization of the language outcomes does not mean that they are to be developed separately. The aim is to show, as clearly as possible, how each of these skills contributes to overall language development.

Students will:

- **use language effectively for a variety of purposes and in a variety of situations**

Reading

By the end of Grade 3, students will:

- understand the many purposes for which people read (for example, for enjoyment, for information, for learning)
- be able to select reading matter that interests them
- be able to understand a story and predict what may happen next
- read for information
- be able to learn new words through reading

By the end of Grade 6, students will also:

- be able to select reading matter from a wider range of materials and for many different purposes
- read for a wide range of purposes
- appreciate that reading can help us learn about ourselves, about others, and about the world
- understand what they read on their own
- be able to interpret and discuss a text

By the end of Grade 9, students will also:

- have a better understanding of their experiences and those of others through reading
- develop and clarify their ideas through reading
- interpret a text in a variety of ways
- be able to adjust their manner of reading to suit their purpose (for example, skim, scan, or study the text)

Writing

By the end of Grade 3, students will:

- understand some of the purposes for writing (to inform, to entertain, to record ideas and feelings)
- be able to write for some of these purposes (to communicate information or feelings, for example)
- be able to revise their text for clarity and to improve legibility
- appreciate writing as a means of expression and communication

By the end of Grade 6, students will also:

- be able to write effectively for a specific audience
- be able to revise and edit their text using correct punctuation and spelling and vocabulary appropriate for their audience
- use writing to express themselves, to learn, and to communicate with others

By the end of Grade 9, students will also:

- be able to vary their vocabulary, sentence structure, tone, and style
- be able to write in different forms (narration, description, exposition, poetry, and so on)
- use writing to express themselves intellectually and emotionally, and to develop values and opinions
- understand the conventions of written language and use them correctly
- use writing to share ideas, experiences, and feelings with others, and to examine issues from different points of view

Listening and Speaking

By the end of Grade 3, students will:

- share experiences, ideas, and information with others
- listen and speak to learn and exchange ideas at home, at school, and in the community
- express themselves confidently

By the end of Grade 6, students will also:

- communicate with others to broaden their experiences and perspectives
- adapt the style and content of their speech to suit their purpose and the needs of their audience
- be sensitive to the ways in which people from other cultures use language and gestures to communicate

By the end of Grade 9, students will also:

- clarify their ideas through discussion and questions
- communicate effectively in more formal ways (for example, giving a speech or an oral report)
- communicate effectively with people from other cultures

Students will:

- **use language to think and learn in a variety of curriculum areas, on their own and in collaboration with their peers**

Reading

By the end of Grade 3, students will:

- understand that reading helps them to think and learn, and use information obtained through reading in their work in various curriculum areas
- use their knowledge and experiences to interpret what they read
- be able to select reading material to find information they need
- use such features as the table of contents, index, and glossary to find information
- understand the organization of a text and identify the main idea and supporting details
- be able to interpret pictures, photographs, simple diagrams, charts, and maps
- be able to follow written directions
- understand the importance of learning to locate and use information

By the end of Grade 6, students will also:

- use research skills to collect information on their own or as part of a group
- be able to explain a topic in a variety of ways (for example, by summarizing information, giving examples, drawing a diagram)
- understand and use the specialized vocabulary of particular areas of study
- understand the ways in which working with others can help them to learn better
- appreciate the importance of having many different sources of information (for example, books, computer databases)

By the end of Grade 9, students will also:

- use a wider range of research skills to gather information on their own or as part of a group
- consult a variety of sources when looking for information on a particular topic or area of study (for example, texts, journals, databases)
- understand that texts reflect the point of view of their authors, and appreciate the importance of reading widely and critically
- develop their own opinions about the content and style of the texts they read
- be able to identify and discuss different types of writing

Writing

By the end of Grade 3, students will:

- draw on their personal interests and experiences in writing
- recognize the forms of organization in different types of writing (for example, beginning, middle, and end in a story), and use them in their own writing
- understand that writing involves three main steps – preparation, writing, and revision – and follow these steps in doing writing assignments
- use writing in a variety of ways to help themselves learn (for example, to record information and special terms)
- understand how graphics are used to present information, and use illustrations and simple diagrams to support their written work

By the end of Grade 6, students will also:

- draw on ideas and ways of presenting them in their writing from books and other media
- understand that different forms of writing are appropriate for recording and presenting information in different areas of study, and use the forms suited to their purpose
- be able to use lists, simple summaries, and definitions to present information
- use illustrations and diagrams to support their writing
- understand and discuss the writing process
- understand the role of writing in learning on their own and as part of a group

By the end of Grade 9, students will also:

- use writing to organize and clarify information
- use various forms of organization in their writing to clarify and shape their thinking
- use different forms of writing to develop thinking skills – for example, the skills used in analysing texts, bringing together related ideas, clarifying information, and applying what they know to new ideas
- use writing to learn the specialized vocabulary of different areas of study

Listening and Speaking

By the end of Grade 3, students will:

- use listening and speaking as ways of learning and expressing themselves

By the end of Grade 6, students will also:

- be able to talk about ideas and work out solutions to problems
- use listening and speaking to find connections between ideas in different areas of study
- be able to prepare and present oral reports in different areas of study

By the end of Grade 9, students will also:

- be able to make generalizations and apply ideas and new vocabulary from one area of study to another
- use listening and speaking to study and analyse various forms of language

- be able to discuss the role and uses of language in literature
- understand and value the role of oral communication in thinking and learning, and use it to organize, analyse, interpret, summarize, and recall information

Students will:

- **use language to make sense of their experiences and to share them with others**

Reading

By the end of Grade 3, students will:

- understand how literature can help them understand themselves and their relationships with others
- understand how literature can help them learn about their own society and countries and cultures other than their own
- relate characters and situations in literature to their own experience
- recognize the values presented in literature
- be able to express how they feel about what they read in a variety of ways (for example, through discussion or through role play)

By the end of Grade 6, students will also:

- discuss people's feelings and motives
- be able to compare information in literature about various cultural groups in order to understand and appreciate differences and similarities among people
- identify with characters in literature and so deepen both their understanding of themselves and their sensitivity to others
- assess the values presented in literature
- explore how they feel about what they read and share their responses with others
- be able to identify prejudice, stereotyping, and bias in literature, and understand how they affect people

By the end of Grade 9, students will also:

- appreciate the many ways in which literature contributes to personal growth
- try to prevent and eliminate prejudice and stereotyping as a result of the insights gained from literature

Writing

By the end of Grade 3, students will:

- appreciate the usefulness of personal writing (to record and to clarify thoughts and feelings, for example)
- record their thoughts and feelings to understand themselves better and to share their insights with others

By the end of Grade 6, students will also:

- use writing to clarify their thoughts and feelings and to develop a sense of self
- record their thoughts and feelings to examine their relationships with others
- appreciate the role of writing in helping people develop a sense of community
- use writing to reflect on their own behaviour and that of others
- use writing to examine their own culture and that of others

By the end of Grade 9, students will also:

- use writing to explore their relationship to their own society and culture
- use bias-free language

Listening and Speaking

By the end of Grade 3, students will:

- share their experiences, thoughts, and feelings with others
- use vocabulary that shows respect for people of both sexes and all backgrounds

By the end of Grade 6, students will also:

- use listening and speaking to learn about their own culture and those of others

By the end of Grade 9, students will also:

- use listening and speaking to explore the similarities and differences in the experiences of people of both sexes and all backgrounds
- use oral communication to examine their own values and those of others
- learn to communicate in a way that shows respect for other people's values and experiences

Students will:

- **use language correctly and in ways that are appropriate for specific purposes, audiences, and contexts**

Reading
By the end of Grade 3, students will:

- use reading to learn the conventions of written language (correct spelling and punctuation, for example)
- understand the purpose of these conventions and use them correctly to make their meaning clear
- use reading to develop their ability to spell
- read to increase their vocabulary and improve their use of language

By the end of Grade 6, students will also:

- use increasingly complex sentences and words
- increase their knowledge of the way words are formed

By the end of Grade 9, students will also:

- understand how language conventions and patterns are used differently in different types of texts
- use texts as sources for learning about language and the many ways it can be used
- be able to compare the way language is used in texts with the way they use language in speech

Writing
By the end of Grade 3, students will:

- understand the important role that the conventions of language (spelling, punctuation, grammar) play in clear and effective written communication
- use conventional spelling, punctuation, and capitalization in their writing (at a simple level)
- use simple sentence structures and other basic language patterns in their writing
- begin to use dictionaries to correct their spelling and use of words

By the end of Grade 6, students will also:

- use and spell a range of words correctly
- experiment with an increasing range of language structures and patterns in their writing
- use a variety of resources to check their spelling

By the end of Grade 9, students will also:

- use the conventions of language to write for a variety of audiences and purposes
- use proper spelling, grammar, and punctuation
- write clear passages using these conventions correctly
- use their knowledge of how words are formed to spell difficult and unfamiliar words

Standard Language:

The variety of language used in the school and in the public institutions of a society.

Listening and Speaking

By the end of Grade 3, students will:

- understand the importance of using standard forms of language in speaking to people
- use a variety of sentence and question forms
- use standard grammar and sentence structure in formal conversation

By the end of Grade 6, students will also:

- understand the need to be specific and to make logical connections between ideas in order to communicate effectively
- use more complex sentence forms to express more complex ideas
- express themselves in clear, connected sentences, using specific vocabulary

By the end of Grade 9, students will also:

- understand the importance of adapting the way they speak to different situations and audiences
- adapt their vocabulary, sentence structure, rate of speech, and level of language to their audience
- understand their responsibility to make sure that what they say is understood

Students will:

- **be able to produce practical and imaginative works in a variety of media, on their own and in collaboration with their peers**

Reading

By the end of Grade 3, students will:

- understand that various kinds of texts can be used as sources of information and as models for organizing ideas
- be able to use information from texts to create drawings, models, and dramatic presentations
- appreciate how our written texts help us to communicate and share information

By the end of Grade 6, students will also:

- combine different sources and different types of texts to make their presentations more effective

By the end of Grade 9, students will also:

- use existing texts as sources of information and as models of organization in creating their own texts

Writing

By the end of Grade 3, students will:

- understand and value writing as a way of creating works that can be shared with others
- understand some basic requirements of written communication (for example, words need to be used correctly and in the right order, handwriting must be legible)
- be able to use dictionaries and a thesaurus
- understand the need to revise what they have written to clarify meaning
- appreciate written works created by themselves and others

By the end of Grade 6, students will also:

- combine information from a variety of sources in their written work
- combine writing with other media to make their presentations more effective

- understand that particular forms of writing require the use of specific features, forms of organization, and patterns (for example, a narrative needs an introduction, a story problem, and a resolution)
- adapt their writing to particular purposes
- use responses to their writing to improve it

By the end of Grade 9, students will also:

- be conscious of the writing process and use its various components to develop their writing skills
- use the works of other writers as models for their own writing

Listening and Speaking

By the end of Grade 3, students will:

- understand that oral communication in groups has to be orderly
- appreciate how oral communication can help a group work together

By the end of Grade 6, students will also:

- appreciate the role of oral communication in creating a group or individual work (to share and develop ideas for a story, for example)
- be able to choose and discuss a topic with a group of classmates and do a group or individual project on it (a mural, for example)

By the end of Grade 9, students will also:

- understand the role of oral communication in group work
- develop more complex conversational skills such as bargaining, persuading, and seeking other views
- think about how a group works, and compare individual and group work as creative methods

INTRODUCTION TO SECOND-LANGUAGE OUTCOMES

General Information

Ontario schools offer a wide range of second-language programs, including programs in French, English, Native languages, and heritage languages. Although these programs differ in many ways, they all share a common approach. In all second-language programs students learn the following:

- vocabulary and grammar
- listening, speaking, reading, and writing skills
- specific language-learning skills
- respect for the customs and beliefs of other cultures

Because second-language programs vary so much in Ontario schools, the results for second-language learning are presented by stages of proficiency, not by grades. There are five stages of proficiency for each of the following areas of language learning: listening, speaking, reading, writing, cultural understanding, and language-learning awareness. These stages of proficiency can help teachers judge what a student can and cannot do. They can also help teachers determine the needs of their students and design second-language programs.

Stage One describes the absolute beginner who is learning to use the second language for practical purposes in a limited number of situations, and who can deal with simple conversations and written texts. Stage Five describes the advanced learner who can use the second language easily in many situations, and who can speak and write it fluently even when dealing with abstract ideas.

Different schools may interpret the stages of proficiency differently. Therefore, it is important for schools and teachers to take into account the following variables when designing a program:

- the broad goals of the program
- the amount of time available for the program
- the students' age and level of maturity
- the students' previous education, especially in their first language
- the students' previous experience with a second language
- the students' opportunities to use the second language outside school
- the number of persons in the community who speak the second language
- the support given to the program by the school and the community
- the learning materials available

English As a Second Language and *Actualisation linguistique en français*

Programs in *Actualisation linguistique en français* help students in French-language schools who have little or no knowledge of the language of instruction to become fluent in French. Programs in English as a second language help students in English-language schools who have little or no knowledge of the language of instruction to become fluent in English. These programs enable students to participate fully in the school's curriculum and social life. It is important, of course, to respect and value the students' home language and culture in these programs.

Individual students learn at different rates, but research has shown that students who enter these programs with no previous background in the language usually need from five to seven years of full-time schooling to become fluent.

French As a Second Language and *Anglais*/English

Programs in French as a second language and *Anglais*/English enable students in both English- and French-language schools to learn the other official language.

English-language schools may offer core, extended, and immersion French programs. Core French programs help students to learn some basic French and to understand French culture and people, but not to become bilingual. In extended and immersion French programs students study other subjects in French. Extended and immersion programs help students learn enough French to be able to understand and speak with native French speakers.

French-language schools may offer beginner *Anglais*/English programs to students who have little or no knowledge of English. Intermediate and advanced programs are offered to students who have developed basic communicative competence and are becoming bilingual.

Native Languages

Programs in Native as a second language enable both Native and non-Native students to learn Native languages and to understand and appreciate Native culture. They can also help Native students develop a positive sense of identity.

Some Native students speak only a Native language when they arrive at school. If possible, these students should be taught in their ancestral language until they are ready for second-language instruction in English or French. This makes the transition between home and school easier. Also, a good grounding in the first language may help students learn a second language more easily.

Heritage Languages

Heritage languages are languages other than English and French. Students learn heritage languages for different reasons. Some students want to improve their skills in their ancestral language. Others want to be able to communicate with family members. And some students simply want to learn another language and find out about another culture.

Heritage Language programs are offered at the elementary level through continuing education. Local school boards decide what languages will be offered, how long the classes will run, and what the hours of instruction will be.

At the secondary level, students can continue their language studies through programs in international languages.

SECOND-LANGUAGE OUTCOMES

Students will:

- **use language effectively for a variety of purposes and in a variety of situations**
- **use language to think and learn in a variety of curriculum areas, on their own and in collaboration with their peers**
- **use language to make sense of their experiences and to share them with others**
- **use language correctly and in ways that are appropriate for specific purposes, audiences, and contexts**
- **be able to produce practical and imaginative works in a variety of media, on their own and in collaboration with their peers**

Listening
By the end of Stage One, students will:

- understand familiar words and phrases and simple statements, instructions, and questions
- distinguish sounds
- understand key ideas in simple conversations on familiar topics

- be able to understand, with some help from the teacher, key ideas in simple oral presentations or written material that is read to them

By the end of Stage Two, students will also:

- understand new words and phrases and simple statements, directions, and questions on familiar topics
- understand key ideas or information in short conversations, stories, songs, news items, and other oral texts
- recognize important differences in pronunciation or vocabulary between two varieties or two levels of the language (for example, the differences between European and Canadian French or between formal and informal speech)
- be able to converse with teachers and classmates on familiar topics

By the end of Stage Three, students will also:

- understand, with some graphic or visual aids, the key ideas in conversations, radio broadcasts, film sound-tracks, advertisements, and short plays or stories
- be able to converse with native speakers on familiar topics

By the end of Stage Four, students will also:

- understand the key ideas and details in longer sentences and oral texts
- be able to make notes on or summarize dialogues, debates, plays, or items from the media
- be able to transcribe passages that are dictated to them
- understand both standard and slang uses of the language

By the end of Stage Five, students will also:

- understand fairly long and complex conversations or presentations on both familiar and unfamiliar topics, presented through a variety of media
- understand formal, informal, and idiomatic uses of the language
- understand fairly complex poems that are read to them or passages of spoken language that express humour or fantasy
- be able to understand a technical report on a topic that interests them and is appropriate to their age
- understand social and cultural references and hidden meanings by "reading between the lines"

Reading

By the end of Stage One, students will:

- be able to read and have a general understanding of a variety of short, simple texts
- begin to use some reading techniques in the second language (for example, using phonetic and contextual clues to guess meaning)
- choose appropriate reading material

By the end of Stage Two, students will also:

- understand familiar vocabulary and expressions in a variety of texts written for native speakers (for example, magazine and newspaper articles, advertisements, brochures)
- understand longer descriptive or narrative texts
- pick out the main ideas and important information in fairly simple texts
- use additional reading techniques in the second language

By the end of Stage Three, students will also:

- be able to read and, with help from the teacher, understand the main ideas and some of the details in a text that is several pages long and is written for native speakers
- be able to read, with the help of a dictionary or other aids, and have a general understanding of some magazine articles, short novels, poems, and other literary texts on familiar topics that are written for native speakers
- be able to read and understand such materials as signs, notices, and advertisements

By the end of Stage Four, students will also:

- be able to read, with the help of a dictionary or other aids, and have a general understanding of more complex written material, including full-length novels, articles on current issues, and textbooks that are written for native speakers of the same age

By the end of Stage Five, students will also:

- be able to read and understand almost any text that is written for native speakers of the same age

Speaking

By the end of Stage One, students will:

- be able to read aloud short phrases, sentences, or paragraphs with the proficiency needed to be understood by native speakers
- be able to ask and answer simple questions
- be able to give and get information, directions, and instructions
- be able to describe, narrate, compare, and express wishes, likes, and dislikes
- be able to have simple conversations with the teacher and classmates
- be able to create short dialogues, skits, and other oral compositions

By the end of Stage Two, students will also:

- use correct pronunciation and intonation and appropriate gestures
- use past, present, and future time accurately in describing events
- use both formal and informal styles of speech correctly in a variety of situations
- be able to express their ideas, opinions, and emotions
- be able to retell in their own words the key ideas in a text they have read or heard
- be able to prepare and present short oral reports or dramatizations
- be able to solve problems through simple language games
- be able to do brief interviews with classmates, the teacher, and native speakers

By the end of Stage Three, students will also:

- be able to have longer and more complex discussions and conversations with the teacher, classmates, and native speakers, on topics of personal interest
- be able to use the language to debate, hypothesize, persuade, report, and summarize
- be able to use the language spontaneously in everyday situations with the proficiency needed to be understood by native speakers
- know when to use formal or informal speech

By the end of Stage Four, students will also:

- be able to have longer and more complex conversations with native speakers, on topics of general interest
- be able to describe or narrate events in detail
- use linking words and phrases correctly
- find ways to make themselves understood despite gaps in their vocabulary or knowledge of grammar

By the end of Stage Five, students will also:

- be able to talk to native speakers about almost any non-technical subject, making only a few mistakes
- be able to give fairly sophisticated oral presentations
- be able to respond quickly and accurately in new or unfamiliar situations
- be able to study or work in the second language
- use pitch, stress, and intonation properly, and be comfortable with idioms and slang

Writing

By the end of Stage One, students will:

- be able to complete a short paragraph using the right words and idioms
- be able to identify and list certain items from a situation or series of events
- use very short sentences to describe familiar situations or narrate events
- be able to create short skits, stories, or poems, with help from the teacher
- be able to take simple dictation
- be able to make notes on a short passage that is dictated

By the end of Stage Two, students will also:

- be able to express their emotions, opinions, and ideas in writing
- be able to write a simple description, narrative, or news bulletin, showing past and present time accurately
- be able to write a short advertisement or commercial

- be able to create a short dialogue, composition, report or other text on a familiar topic
- be able to transcribe a short paragraph or dialogue that is dictated

By the end of Stage Three, students will also:

- be able to write compositions, letters, or reports of four to eight paragraphs on familiar topics
- be able to write short texts that could be understood by native speakers
- use verbs and other structures correctly to express past, present, and future time
- be able to complete forms or questionnaires on familiar topics
- be able to write a simple personal letter, using appropriate salutations and endings

By the end of Stage Four, students will also:

- be able to write longer compositions, reports, summaries, and other texts, making only a few mistakes
- be able to communicate in writing with native speakers on any subject of general or personal interest, making only a few mistakes
- use almost all verb tenses correctly
- be able to write a short business letter, using appropriate salutations and endings

By the end of Stage Five, students will also:

- be able to write almost as well as a native speaker, with some help from a dictionary or other reference aid
- use different levels of language and various literary techniques, such as humour or metaphors, to add interest to their writing
- be able to perform, with some help, all writing activities needed to study or work in the second language

Cultural Understanding

By the end of Stage One, students will:

- recognize both the similarities and the differences between themselves and students who are native speakers of the second language
- be aware of some of the places in the world where the language is spoken

By the end of Stage Two, students will also:

- be able to identify some customs, traditions, values, and attitudes of native speakers of the second language
- recognize that native speakers of the language may come from different cultures
- recognize that speakers of the language have made important contributions to Canada
- be proud of their own heritage and respectful of other cultures
- be able to identify the countries and regions where the language is spoken
- be motivated to learn more about the cultures associated with the second language

By the end of Stage Three, students will also:

- appreciate the points of view of other cultures
- be aware of the ways the culture of native speakers of the language is portrayed in literature and the media
- recognize cultural stereotypes
- behave appropriately in social situations involving people from another culture

By the end of Stage Four, students will also:

- understand the cultural references that they come across in their study of the language
- know about people from ethnic and racial minorities who have made contributions to the culture of native speakers of the language

By the end of Stage Five, students will also:

- understand and be able to describe some aspects of the culture of native speakers of the language
- use their knowledge and skills to learn other languages

Language-learning awareness helps students understand how they learn language and why language learning is important. Students also learn a variety of techniques that help them learn a language, as well as useful terms for talking about language.

Language-Learning Awareness

By the end of Stage One, students will:

- know about the variety of languages and dialects spoken by their classmates and by people in their community and around the world
- be able to use some basic language-learning techniques, such as asking questions, rephrasing, and keeping a personal journal
- understand that it is often easier to learn a language when they work together with their classmates
- be aware of the kinds of knowledge and skills they use from their first language in attempting to express themselves in a second language
- accept that making mistakes is natural and useful when learning a language
- recognize some of the main similarities and differences between English or French and the second language
- understand the value of learning languages

By the end of Stage Two, students will also:

- understand that languages change over time, that they have their origins in other languages, and that they can be grouped into families
- recognize that languages often borrow from each other
- be able to ask more complex questions in the second language to get information about that language (for example, "Is that word singular or plural?")
- understand the functions of language (for example, to explain, describe, narrate, persuade)
- know and use the stages of the writing process in their own writing
- know how to use dictionaries and reference books
- know how to make themselves understood in spite of gaps in their vocabulary or grammar
- recognize some current tools for learning languages (for example, audiotapes, videotapes, and computers)
- be motivated to continue their language studies

By the end of Stage Three, students will also:

- be able to pick out words in French or English and the second language that have common origins
- distinguish between formal, informal, and slang uses of the language
- understand some basic grammatical terms
- know how to use gestures, pictures, signs, and other tools as well as language to get their point across
- be able to do research in the second language on topics under study
- know the main techniques used in reading (for example, guessing what will follow or picking out the main idea)

By the end of Stage Four, students will also:

- understand that language is affected by the values and beliefs of the community in which it is spoken
- understand the effect of using language that is not considered socially appropriate in a given situation
- understand that language is affected by its function
- be able to compare languages to show how language can affect the way in which people look at the world

By the end of Stage Five, students will also:

- use their language-learning techniques to deal with increasingly complex language, both in their school work and in conversation with native speakers

OUTCOMES (RESULTS) FOR THE ARTS

Understanding Form in the Arts

Students will:

- **recognize and be able to describe the form and aesthetic aspects of works of art, as well as of other objects and materials**
- **be able to discuss the use of techniques and ideas in each of the arts, using appropriate terms**

By the end of Grade 3, students will:

- understand that there are many aspects to a work of art that contribute to its effect
- understand that each of the arts requires specific skills
- use the right terms in discussing ideas and techniques in works of art, as well as their own artistic ideas
- understand that the arts of different cultures have similarities as well as differences
- understand that technology can be used in creating works of art
- be aware that certain aspects of works of art, such as rhythm and balance, have a wider application in daily life
- be aware of the role of the senses in learning about the arts

By the end of Grade 6, students will also:

- understand how different aspects of a work of art function together to make a meaningful whole
- be able to produce their own works of art, using the skills required in the different arts
- be able to analyse and defend the choices that they make in producing a work of art
- be able to identify various styles, techniques, themes, and design ideas in familiar works of art
- be able to describe how artists in various cultures have used similar ideas, materials, and techniques
- understand that the arts have many aspects of form in common
- understand that using technology to produce a work of art can affect the artist's methods and can result in a different kind of work of art
- show sensitivity to the world around them

By the end of Grade 9, students will also:

- be able to make judgements about the use of specific skills in each of the arts and about the overall effectiveness of their own and others' works
- be able to analyse the style, techniques, and themes of works of art
- be able to describe what is unique in the arts of various cultures
- understand what is unique in each of the arts
- understand how technological advances have affected artists in the past
- show that they can apply their skills and aesthetic judgement in other activities
- be able to plan for future studies in the arts

Exploring Meaning in the Arts

Students will:

- **be able to describe their responses to and interpretations of works of art**
- **be able to discuss and evaluate the responses of others**
- **recognize and support excellence and originality in the arts**
- **be able to express ideas and feelings through the arts, and appreciate the expression of ideas and feelings in the works of others**

By the end of Grade 3, students will:

- be able to describe their personal responses to works of art
- develop some self-awareness through activities in the arts
- recognize that the arts can express ideas and portray social conditions
- understand that creating works of art can be satisfying
- recognize that different styles in the arts reflect different cultures

By the end of Grade 6, students will also:

- begin to look critically at works of art
- develop social skills through activities in the arts
- be able to explain how the arts can express ideas and reflect social and cultural conditions

By the end of Grade 9, students will also:

- be able to explain how the self-awareness and social skills that they have developed through study of the arts can be valuable in other areas of their lives
- understand how works of art can affect people's attitudes
- be able to explain how creating works of art can enrich their lives
- be able to discuss the nature and use of subliminal messages in the arts

Understanding the Function of the Arts

Students will:

- **grow emotionally and intellectually through their study of the arts and gain insight into their own lives**
- **acquire a new understanding of other people, places, times, and cultures, and recognize what is universal in human experience**

By the end of Grade 3, students will:

- understand that works of art can affect people's emotions
- understand that the arts have many aspects in common
- know about places in their community where they can learn about and experience the arts
- recognize ways in which people contribute to the cultural life of their community
- know how to behave at art galleries, concerts, and plays
- know that there are jobs in the arts
- know that people of different races and cultures in Canada and other countries have produced works of art, and be aware of Native and folk arts in Canada
- understand that stereotyping and prejudice can be found in works of art and that works of art can portray conflict
- be aware that cultural traditions can be preserved and changed through works of art
- recognize and respect the artistic viewpoints of others
- understand that they can both create their own works of art and appreciate the works of others
- know how to work with others on creative projects

By the end of Grade 6, students will also:

- understand that works of art can affect people's behaviour
- understand that there are links between the arts and other subjects
- know about places in other communities where they can learn about and experience the arts
- know which skills they need in order to contribute to the cultural life of their community
- know that there is prejudice in the arts world
- know about some specific jobs in the arts
- know about contemporary arts in Canada
- understand that problems can be solved in the process of creating works of art

By the end of Grade 9, students will also:

- know how to make use of arts facilities and services
- show that they can contribute to the cultural life of their community
- know their own potential for a career in the arts
- be able to analyse stereotyping and prejudice in works of art
- show that they have developed interpersonal and problem-solving skills as they participate in arts projects

Communicating Through the Arts

Students will:

- **be able to use a variety of materials, concepts, and techniques in each of the arts to create their own works of art**
- **be able to explain the connection between the form and meaning of their works**
- **be able to set personal goals in the arts and evaluate their progress**

By the end of Grade 3, students will:

- recognize that sounds can be represented by symbols
- be able to use various kinds of materials to create works of art
- understand that the body can be one of the instruments in each of the arts
- be able to use arts tools and materials properly and safely

- show some knowledge of how technology can be used in the arts
- be able to organize classroom productions and exhibitions
- be able to use artistic symbols, materials, and styles from their own and other cultures in creating works of art
- recognize that environmental topics can be explored through projects in the arts
- understand the basic conventions for performance and presentation
- be able to use their personal experience as subject matter
- recognize that each of the arts communicates in different ways and thus requires different skills

By the end of Grade 6, students will also:

- know that various kinds of symbols can be translated into sounds (for example, musical notation, computer graphics)
- show their knowledge of artistic concepts in performance and in creative activities
- understand the importance of a balanced diet and general fitness to participation in the arts
- know how to use technology to express themselves through works of art
- know how to store arts tools and materials safely
- be able to communicate messages about environmental issues through works of art
- understand how different cultures express ideas and concerns through works of art

By the end of Grade 9, students will also:

- know how to translate sounds into symbols and symbols into sounds
- show skill in the artistic use of various kinds of materials in their own works of art
- show skill in their performances and presentations
- be able to plan and organize classroom productions and exhibitions, as well as evaluate their success

OUTCOMES (RESULTS) FOR SELF AND SOCIETY

Meaningful Participation: The Individual in Society

Students will:

- **be able to set appropriate goals for themselves and make informed decisions about their future education and career**
- **recognize the ways in which global and environmental factors and issues may affect their career and lifestyle opportunities**
- **make responsible personal choices about health, lifestyle, and relationships**
- **be able to resolve conflicts in a peaceful and co-operative way**
- **contribute to social change through democratic action**

By the end of Grade 3, students will:

- participate in a daily physical education program
- communicate effectively with others
- work independently and with others
- accept responsibility for their actions
- perform a service at home or at school (for example, take care of an elderly family member, clean litter from the school area)
- understand the benefits of exercise and good nutrition
- know and observe safety rules and know how to get help in an emergency
- understand the difference between prescription and non-prescription drugs, and know how to use medicinal drugs safely
- recognize and report threats to their safety
- use basic social skills appropriately in a variety of situations
- understand the nature of family relationships and recognize that there are different kinds of families
- have an understanding of emotions and their role and distinguish between acceptable and unacceptable ways of expressing them
- know their own interests and strengths and understand how they may relate to their future educational and career choices
- be able to compare different jobs
- have some ideas about how they can improve themselves and society

By the end of Grade 6, students will also:

- know how to maintain a healthy lifestyle and be able to evaluate their own lifestyle
- see ways in which they are responsible for the well-being of their peers
- understand aspects of sexuality that are relevant to them
- understand basic information about contagious diseases
- understand the dangers of smoking and drug abuse, as well as some of the reasons why people use tobacco and other drugs
- know how to be wise consumers
- understand the relationship between education and career choices, and understand how a career affects all aspects of daily life
- be able to gather information about various careers as part of their career planning
- strive to improve themselves and society

By the end of Grade 9, students will also:

- be motivated to maintain a healthy lifestyle
- begin to understand the physical, emotional, social, and spiritual aspects of sexuality
- understand peer pressure and be conscious of their own values
- be aware of various forms of violence and consider ways of dealing with them
- be able to examine the ways in which they make their decisions, and be aware of the effects of their personal choices on the community
- be able to act as mentors to others
- understand information and issues related to contraception, AIDS, and sexually-transmitted diseases
- be aware of healthy and unhealthy eating habits and attitudes to food
- be motivated to work on an environmental project
- be able to develop their career plans and be aware of the kinds of preparation required for various careers
- have an understanding of the role of leisure in life

Understanding Diversity

Students will:

- **know about and value the contributions of people from a wide variety of cultures, races, religions, and socio-economic backgrounds in their community, Canada, and the world**
- **understand and appreciate the similarities and differences among individuals and groups**
- **understand the influence of cultural and family traditions on individuals and groups**
- **know about the history of Canada and understand the points of view of the various groups who played a part in that history**
- **understand how geographic features, climate, and natural resources affect the choices people make about where they live and work**
- **respect the rights of others and be willing to carry out their responsibilities as citizens**

By the end of Grade 3, students will:

- recognize and accept both similarities and differences among people
- understand and accept differences between their own and their family's beliefs and those of others
- be aware of similarities and differences between various environments
- value their own race, sex, ethnic background, and religion, and respect those of others
- understand how people's attitudes and opportunities are affected by sex, age, race, ethnic background, and ability
- recognize the contributions of various cultures to the community
- be aware of their rights and responsibilities as members of the community

By the end of Grade 6, students will also:

- know about and value the culture of their ancestors
- recognize positive role models in the community
- recognize job stereotypes
- know how people interact with their environment
- understand the role of the Native peoples and other founding groups in the early history of Ontario and value their contributions

- be able to see events in Canadian history from the points of view of different groups
- recognize and understand some of the causes of injustice in their community
- work against racism
- understand that all men, women, and children have legal rights and obligations

By the end of Grade 9, students will also:

- be able to talk about their own beliefs and the influences that have shaped them
- know about a variety of cultural traditions and understand their role in people's lives
- understand the importance of a system of laws that is based on fairness and justice for all
- be aware of forms of violence and look for the best ways to deal with them
- know about Canada's regional, physical, political, economic, and population diversity
- be able to explore a variety of social issues at the national and global levels
- consider issues related to the present condition and future development of Native societies
- understand the role of immigration in the development of Canada
- know about and appreciate the culture of Franco-Ontarians
- consider how and why business and government should work together to strengthen Canada's role in international affairs and the world economy

Understanding Natural and Human-made Systems

Students will:

- **understand the relationship between Canada's land and its people**
- **understand how people depend on each other within a society and how societies around the world depend on one another**
- **recognize power relationships in groups, society, and the international community, and assess their causes and impact**
- **understand Canada's relationships with other countries**
- **understand the role of business, industry, labour, and government in their community and Canada**
- **understand the ways in which culture affects ideas and behaviour**
- **understand the influence of technological changes on education, work, and leisure**

By the end of Grade 3, students will:

- have some knowledge of their own and other cultural groups in the community
- know about various community groups, institutions, and services, and understand how they affect their lives
- use school and community services
- know about many kinds of work and see the value of all kinds of work
- be able to analyse an ecosystem in their community (a river valley, for example)
- understand how Canadians use their land and natural resources
- be able to identify and describe the basic systems of the body
- understand how humans interact with the environment in Canada and the world
- express their own opinions and concerns about global and environmental issues
- be aware of how technology affects their lives at home and school

By the end of Grade 6, students will also:

- know about a variety of artistic and religious activities in their community, as well as the activities made available by such agencies as the YMCA
- know about a variety of natural resources and their use at the local, regional, and national levels
- be able to examine ways in which human and natural systems are connected
- understand and be able to discuss the effects of business, industry, and labour activities on our standard of living
- be able to identify local ecosystems and explain various factors that affect them, as well as the ways in which the ecosystems are connected
- be able to analyse a fragile environment
- be able to identify and explain the factors that affect the price and availability of goods and services
- have some understanding of how Canadians interact with other people in the world
- be able to describe a variety of institutions and governments in Ontario and Canada
- understand some of the ways in which technology influences people's lives

By the end of Grade 9, students will also:

- contribute to and/or use the services of support agencies in their community
- be able to explain the changes over time in land use in Canada
- understand how Canadian institutions and governments are organized and how they work
- understand power relationships among individuals, in society, and in the world
- understand the role played by Canadian institutions and other countries in the development of Canada
- understand why independent, entrepreneurial, and co-operative work skills are important for success in a career
- understand the relationships among business, labour, and government

- understand the role and influence of culture in societies
- understand important factors that influence supply and demand
- understand how banks and other financial institutions affect the activities of businesses and individuals
- understand the role of ethics in business, labour, and government
- understand how social and economic factors affect people's lives
- understand some of the reasons why people start businesses
- understand a variety of cultural, economic, environmental, and physical patterns at the local, national, and international levels (for example, deforestation, pollution, employment patterns, inflation)
- understand the relationship between people, the environment, and products in Canada and the world (for example, the natural resources available affect what people do and produce)
- be able to explore how government and private-sector organizations respond to global and environmental issues
- be able to suggest ways of managing our resources responsibly
- be able to use knowledge of the past to gain insight into the present and the future
- be able to identify some key issues and show how they relate to "sustainable development"
- be able to evaluate how technology affects the environment

Functioning in the Age of Information

Students will:

- **know how to find, organize, and evaluate information from a variety of sources**
- **understand the ethical and legal implications of information use and develop ethical practices**
- **understand information technology and be able to use it appropriately**

By the end of Grade 3, students will:

- know how to obtain information in a variety of ways and from a variety of sources
- understand different ways of organizing, analysing, interpreting, and storing information

- be able to use a diary of school activities to organize and keep track of their own activities
- understand and begin to use a variety of graphs, charts, models, and diagrams
- be able to convey information orally and in writing, as well as through other communication media (such as computers)
- be able to detect bias in information and understand its effects
- be able to propose alternative solutions to problems
- be able to identify some present and possible future uses of information technology

By the end of Grade 6, students will also:

- use the appropriate methods for locating and selecting specific kinds of information (for example, reference books, computer databases)
- know how to use various kinds of technology to make their work easier and more effective
- be able to organize, analyse, interpret, store, and retrieve information in various ways (for example, by summarizing, drawing conclusions, making up theories, using computers, memorizing)

By the end of Grade 9, students will also:

- understand how using information effectively can improve their work in many areas
- be able to organize, analyse, interpret, and store information accurately
- be able to use their school diary to plan for the future
- convey information accurately and responsibly
- be aware of some of the legal and ethical implications of information use (for example, the importance of accuracy, copyright, respect for confidentiality)
- know how to assess the reliability of information
- be aware of the risks and benefits of using information technology in various areas of life

Understanding and Managing Change

Students will:

- **understand the causes of change and its effects on individuals, families, and institutions in Canada and the world**
- **understand the relationship between human activity and environmental changes**
- **deal with change effectively and confidently**

By the end of Grade 3, students will:

- be able to describe some of the changes they have gone through and will go through
- understand the ways in which people's roles can change, especially in the family
- be able to identify changes in the community and discuss ways in which these changes affect them personally
- be aware of significant changes in the world
- understand the idea of flexibility and be able to discuss how people adapt to change
- use problem-solving skills to deal with change in their own lives
- understand why new products and services are created
- be able to use everyday items to create new things (for example, make a toy out of a milk or egg carton)

By the end of Grade 6, students will also:

- understand how their roles, responsibilities, needs, abilities, etc., change as they grow and mature
- know where to get advice and information that will help them cope with the changes they are experiencing
- be aware of what they can do to adjust to new situations and people
- understand that lifelong learning can help them keep up with change
- understand how their decisions and actions can make a difference, and suggest ways of bringing about desirable changes

- know about global changes that affect or will affect their lives
- be aware of changes in jobs and changes in the world of work
- be able to discuss changes in the traditional roles of men and women in the work force
- understand how social and economic circumstances affect people's lives
- use problem-solving skills to deal with changes in their community
- understand some of the effects of technology on society
- be able to identify some changes in lifestyles and careers in their family and community, and discuss how changes interact and produce more change
- be able to describe what consumers can do to influence the type and quality of products and services available

By the end of Grade 9, students will also:

- consider the nature of change and be aware of its effects on the individual and society
- see ways in which they can become lifelong learners
- see how their studies relate to future career opportunities
- be able to analyse various changes in the local community
- be able to analyse changes in business, labour, and industry in Canada and the world
- understand how changes in the economy can affect them
- be able to analyse how technology affects the world of work
- understand the concept of "sustainable development"
- be able to analyse information to form opinions and plan for the future

OUTCOMES (RESULTS) FOR MATHEMATICS, SCIENCE, AND TECHNOLOGY

Understanding Models, Theories, and Perspectives

Students will:

- **know how to work with models and theories representing the natural and human-made worlds**

Learning Outcomes:

The results that students are expected to achieve at certain key stages of the school program. Outcomes describe what students should know, should be able to do, and should value as a result of their learning.

By the end of Grade 3, students will:

- recognize and understand patterns, and use these patterns to build mathematical models and solve everyday problems
- be able to classify common objects and put them in series
- be able to see relationships among things based on their size, shape, colour, strength, and texture
- be able to compare and evaluate the design of everyday items
- be able to identify changes in their environment over time
- be aware of recurring events and patterns in their lives (for example, holidays, seasonal changes, weather patterns)
- have some understanding of how living things interact with each other and adapt to their environment
- be able to identify and explain changes in non-living things in their immediate environment
- understand the idea of energy and be able to identify everyday forms (for example, heat, light, electricity)

By the end of Grade 6, students will also:

- be able to recognize the relationships among patterns in mathematics
- be able to recognize and describe patterns in the natural and human-made environments
- understand how the form, shape, colour, texture, strength, and structure of a thing relate to its function and purpose (for example, a bridge is built for strength, a kite is designed for flight)
- have some understanding of how familiar products, processes, and systems work
- be able to predict changes in themselves, other people, and the environment

- understand the relationships among events, time, distances, and speed
- understand and be able to explain changes in the environment
- be able to identify plants and animals native to particular habitats and explain their interaction
- understand how materials are changed naturally (for example, rust, tarnish, decay)
- be able to describe the characteristics of one or more forms of energy
- be able to demonstrate, through experiments, how energy works and changes from one form to another (for example, electricity changes into heat and light)

By the end of Grade 9, students will also:

- be able to use algebraic notation and algebraic modelling
- be able to recognize and describe complex patterns and relationships in the natural and human-made environments
- be able to compare the physical, chemical, functional, and aesthetic qualities of objects
- be able to evaluate various products, processes, and systems and suggest improvements
- be able to predict changes by analysing processes and trends
- be able to describe the cycles found in the world and in the universe
- understand and be able to explain some theories about the process of change in the environment over time
- understand and be able to explain some models and theories about the interactions of living things
- be able to explain ways in which matter changes physically and chemically
- be able to examine the human use of energy around the world in relation to available natural resources
- be able to explain how various objects and machines use energy

Students will:

- **be able to use the languages, models, symbols, and methods of mathematics, science, and technology accurately and appropriately**

By the end of Grade 3, students will:

- begin to learn about mathematics, science, and technology by reading, observing, making things, and communicating their findings
- be able to follow simple instructions and use the right terms to describe what they are doing

By the end of Grade 6, students will also:

- be able to create and use models, symbols, and pictures
- be able to choose and follow appropriate procedures for various problem-solving methods

By the end of Grade 9, students will also:

- be able to use a variety of methods, technical devices, and processes to investigate, learn, and communicate in mathematics, science, and technology
- know how to gather information by reading mathematical, scientific, and technological books and journals and by consulting databases
- know how to analyse such information and apply it accurately

Students will:

- **know how to conduct an investigation honestly and objectively**

By the end of Grade 3, students will:

- know the procedures to follow to ensure objectivity and honesty in an investigation
- be able and willing to work alone or with others
- understand why it is important to be accurate, thorough, and persistent when conducting an investigation

By the end of Grade 6, students will also:

- be able to detect biases, gaps, and distortions in investigations and learning materials
- understand the need for orderly procedures in group work and be able to develop such procedures in co-operation with others
- conduct investigations with accuracy, thoroughness, persistence, creativity, and honesty

By the end of Grade 9, students will also:

- understand and be able to explain why honesty and integrity are important to mathematical, scientific, and technological investigation, and demonstrate these qualities in conducting their investigations
- understand and be able to explain why collaboration is important to the advancement of knowledge
- understand why accuracy, thoroughness, persistence, and creativity are necessary in any investigation, and demonstrate these qualities in their own investigations

Students will:

- **know how to analyse and evaluate their own views and those of others**

By the end of Grade 3, students will:

- be aware of and be able to evaluate the views of people they deal with when conducting investigations and collecting information
- understand that there are many ways of explaining the things we observe in the world
- be able to find more than one solution to a problem, and respect other people's solutions

By the end of Grade 6, students will also:

- appreciate that cultural perspectives may vary, and be aware of a possible prejudice in favour of European views
- understand that different disciplines may offer different explanations (for example, religion and psychology may explain certain behaviours differently)
- be able to examine different explanations and solutions, determine their validity, and apply the most appropriate solution in a given situation

By the end of Grade 9, students will also:

- consider different points of view before making judgements and choices in conducting an investigation
- be able to describe different models used to explain the world (for example, scientific, religious, and mythological models)

Students will:

- **understand and appreciate the contributions of Canadians and other people to mathematics, science, and technology**

By the end of Grade 3, students will:

- know of contributions made by people from their own and other cultures

By the end of Grade 6, students will also:

- be able to compare and discuss contributions made by people from a variety of backgrounds

By the end of Grade 9, students will also:

- be able to compare and evaluate objects, processes, and systems from a variety of cultures

Understanding Systems and Structures and Their Functions

Students will:

- **know how to safely use a variety of materials, tools, and processes to conduct investigations**
- **know how to design and build their own products, processes, and systems, and report on these activities**
- **be able to analyse and evaluate products, processes, and systems**

By the end of Grade 3, students will:

- be able to safely use simple tools and materials to extend their senses and to build simple objects, models, and systems while trying to solve a problem
- understand the uses of simple devices and systems (such as wheels and pulleys)
- understand and be able to demonstrate how various systems work and are connected

- be able to put together and use devices (such as levers and teeter-totters) that show their understanding of physical laws
- be able to use materials, computers, and other tools to depict ideas and procedures

By the end of Grade 6, students will also:

- be able to safely use more complex tools, equipment, and materials (for example, hand and power tools, microscopes, and a variety of measuring devices) in conducting personal and group investigations and in sharing information
- be able to evaluate various products, processes, and environmental systems (such as water purification and air conditioning)
- understand how control devices used in systems and mechanisms work (for example, thermostats, valves, and circuit breakers)
- be able to represent more complex ideas and procedures (such as weather forecasting) using various tools
- recognize that mathematics, science, and technology involve the application of ideas about things and processes in the natural world (for example, space, time, energy, life, matter, change)
- be able to design and build simple objects and systems to solve a problem
- understand how the elements of simple technological systems (bicycles, for example) work together and how they can be improved

By the end of Grade 9, students will also:

- be able to evaluate a variety of tools, equipment, and materials while conducting an investigation
- know how to design, build, test, and evaluate various products, processes, and systems and make changes to increase their efficiency (for example, design and build model gliders and make changes to the shape and length of the wings, and/or the materials used, in order to improve their flight capability)
- understand the components of complex technological systems (for example, electronic circuit boards)
- be able to explain the operation of more complex control devices (such as solar panels and hydraulic valves)

- be able to represent more complex ideas and procedures using various tools (for example, make a model of the solar system)
- know how to use a broad range of ideas, skills, materials, and equipment in investigation and design

Students will:

- **use creative and critical thinking skills and bring a disciplined approach to their investigations, problem solving, and design work**

By the end of Grade 3, students will:

- be able to make things using a variety of materials, tools, and methods (for example, glue, nails, screws, paper, wood, fabric)
- be able to design and make things from found materials (for example, toys and household utensils)
- be able to evaluate everyday products (for example, commercial toys, tools, and household utensils) and suggest possible improvements

By the end of Grade 6, students will also:

- have a knowledge of the characteristics of various materials and understand how these change as a result of some process or action (for example, through heating, bending, corrosion)
- be able to design and make useful objects out of waste materials (for example, recycle a bleach container into a bird feeder or a funnel), and evaluate and improve them

By the end of Grade 9, students will also:

- be able to select the appropriate materials for various functions and explain how their special characteristics (such as insulating ability, durability, light sensitivity) can be strengthened
- be able to design and create products, processes, and systems for specific purposes and evaluate them considering such aspects as environmental effects, cost, durability, and visual appeal
- understand that in mathematics, science, and technology people learn through overcoming obstacles and solving problems

Students will:

- **understand and be able to use ideas and skills associated with systems and processes**

By the end of Grade 3, students will:

- be able to estimate, read, and write numbers, and estimate answers to simple calculations
- understand the basic operations of addition, subtraction, multiplication, and division of whole numbers, and perform these operations with accuracy
- understand spatial relationships and the effects of motion geometry (for example, by sliding, rotating, or flipping two-dimensional figures on a grid; these motions change the position of the figures, but not their size or shape)
- understand the idea of dimension (as exemplified in two-dimensional and three-dimensional figures)
- understand the ideas of temperature, time, distance, speed, length, perimeter, area, capacity and volume, mass, and money
- use metric and other systems of measurement
- make simple calculations in their head and know basic facts by memory (such as the multiplication tables to 6 x 6)
- be able to recognize and generalize from patterns and series
- understand how the parts of their bodies work and apply this knowledge to healthy living
- be able to describe, using the right terms, living and non-living things (for example, animals and their behaviour)
- have an understanding of simple cause-and-effect relationships through experiments
- be able to explain the similarities and differences among living things
- have an understanding of the laws of nature through experiments
- be able to recognize patterns in nature (for example, the movement of the sun across the sky) and make predictions based on observations
- know about weather patterns and their effects on daily life

- be able to identify some of the sources and properties of light
- be able to describe the characteristics of a variety of materials and objects (for example, plastic, wood, metal, paper)
- know where their food, clothing, and shelter come from

By the end of Grade 6, students will also:

- understand both whole-number and decimal place values
- be able to select appropriate methods (mental calculation, use of a calculator or computer, etc.) to solve problems with whole numbers, fractions, percentages, and decimals
- be able to use motion geometry to check the properties of figures and to create patterns and designs
- be able to work with two-dimensional and three-dimensional figures and use x and y axes to represent relationships defined by charts and tables
- be able to estimate, measure and/or calculate, and record, using appropriate units, temperature, length, perimeter, area, capacity and volume, mass, money, time, distance, and velocity
- know basic information such as the multiplication tables to 12 x 12
- be able to identify patterns and functions and explain the relationships between them
- understand more complex cause-and-effect relationships through experiments
- know about the needs of living things through experiments
- know about the properties of solids and liquids through experiments
- be able to describe the movements of the earth, moon, and sun and their effects
- know about ways of predicting the weather and be able to use simple weather instruments
- have an understanding of the properties of light through experiments with mirrors, lenses, and prisms
- be able to analyse the physical properties of materials (for example, tensile strength) through experiments
- understand the role of nutrition in their lives

By the end of Grade 9, students will also:

- be able to calculate approximate values
- be able to perform calculations involving integers, ratios and rates, powers, and square root
- be able to solve problems in transformational geometry
- use co-ordinate geometry to describe and represent relationships defined by equations and formulas
- be able to use mathematical symbols when solving problems involving equations
- be able to solve problems using linear equations with one variable
- understand and be able to explain what happens when a system in the human body breaks down
- have an understanding of and be able to describe the properties and structure of matter and relate this knowledge to real-life situations
- understand and be able to explain environmental cause-and-effect relationships on a global scale, and offer possible solutions to environmental challenges
- have an understanding, through experiments, of the structure and physiology of living things and show concern for their well-being
- have an understanding of and be able to explain the movements of planets and constellations and be able to relate this understanding to space travel, the availability of energy and food sources, and the future direction of space exploration
- be able to investigate weather and climate and relate them to environmental problems and solutions
- understand the characteristics of plant and animal cells
- understand the characteristics of plants
- have an understanding of food and energy, food production, and food processing

Students will:

- **be able to identify and describe aesthetic qualities in products, processes, and systems, and incorporate these qualities in their own creations**

By the end of Grade 3, students will:

- be able to identify, describe, and use natural and synthetic materials when studying their immediate environment
- be able to describe their thoughts and feelings about the aesthetic qualities of things around them

By the end of Grade 6, students will also:

- be able to identify and use the most appropriate and attractive materials for specific purposes
- be able to express precisely how they feel about the aesthetic qualities in the products, processes, and systems around them

By the end of Grade 9, students will also:

- appreciate the practical and aesthetic qualities of materials and tools used in solving technological problems
- be able to defend their judgements about aesthetic qualities

Investigating Interrelationships and Change

Students will:

- **understand the ways in which mathematics, science, and technology are interconnected**

By the end of Grade 3, students will:

- recognize and use, in problem solving, different ways of looking at the same idea
- recognize connections between mathematics, science, and technology in what they study and investigate at school and in what they observe around them at home and in their neighbourhood

By the end of Grade 6, students will also:

- use the connections they see between mathematics, science, and technology in their investigations of things in the community (a field, a stream, television, bicycles, etc.)

By the end of Grade 9, students will also:

- be able to compare different ways of looking at the same idea
- use the connections they see between mathematics, science, and technology in their investigations of things at the regional, national, and global levels (for example, communications and transportation systems)

Students will:

- **understand the ways in which mathematics, science, and technology shape and are shaped by various societies and cultures**

By the end of Grade 3, students will:

- use mathematical, scientific, and technological knowledge and skills in the classroom and in their daily lives
- be able to identify and compare objects and products used for the same purpose in different cultures (for example, toys, vehicles, bridges)
- understand how certain forms of technology change the environment (for example, snow ploughs, thermostats)
- understand how certain forms of technology affect their lives (for example, clocks, cars, tools)

By the end of Grade 6, students will also:

- understand and be able to explain why mathematical, scientific, and technological skills and knowledge are important to society
- be able to compare the uses of various forms of technology in different cultures
- see how technology can affect different environments
- be able to explain the development of forms of technology that are important to their lives

By the end of Grade 9, students will also:

- use mathematical, scientific, and technological knowledge and skills to investigate different issues
- understand the benefits and limitations of their knowledge and skills, as well as the positive and negative effects of technology on environments and societies
- be able to identify past and present, and predict some of the future consequences of the use or misuse of technology

Students will:

- **know how to explain and evaluate relationships between people and the environment**

By the end of Grade 3, students will:

- be able to describe how different cultures interact with the natural world
- be familiar with the natural habitats in their neighbourhood
- see connections between the way people live, technology, and the environment

By the end of Grade 6, students will also:

- be able to compare the relationship to the environment of high-technology and low-technology cultures and societies
- be able to describe their bioregion (the region in which they live, which is made up of different habitats in which various plants and animals live and interact), and investigate local habitats (for example, marshes, woods, rivers)
- be able to explain the connections between the way people live, technology, and the environment
- understand and be able to describe connections between the natural and human-made environments in the community

By the end of Grade 9, students will also:

- understand and be able to compare the attitudes of various cultures and societies to the natural environment
- understand the importance of their bioregion and its place in the world
- be motivated to protect their bioregion

- be able to describe environmental problems caused by technology and suggest solutions
- be able to investigate regional, national, and global problems caused by interaction between technology and the environment and suggest solutions

Students will:

- **show concern for living things and ecosystems, and be motivated to protect the environment**

By the end of Grade 3, students will:

- be able to care for living things (animals, plants) at school and in their neighbourhood and to explain similarities and differences among them
- understand some of the ways in which people affect ecosystems
- be able to identify and participate in school and community activities that help to preserve the environment
- be able to identify an environmental issue in the school and make a plan to deal with it
- understand that what they do makes a difference, and be willing to learn how to save resources and energy
- participate in activities that show care for life (for example, gardening, feeding birds)

By the end of Grade 6, students will also:

- have an understanding of and be able to explain the life cycles of and relationships among various plants and animals
- be able to compare the past and present ecology of their community
- be able to identify environmental problems and suggest solutions
- be able to explain how activities like recycling help to preserve the environment
- participate in school and community activities that help to preserve the environment (for example, tree planting)

By the end of Grade 9, students will also:

- understand and be able to explain how living things adapt to their environment
- be able to conduct an in-depth study of a living thing to show how it interacts with its environment
- be able to describe the ecological history of their bioregion and explain how human beings have affected it
- be able to describe their environmental values and explain how they put them into practice
- be able to communicate in a creative way (by putting on a play, for example) their vision of what our environmental future could be and should be
- understand and be able to compare the short-term and long-term effects on the environment of the use of energy from a variety of sources
- promote environmental awareness and positive behaviour towards the environment
- practise reducing, reusing, recycling, and other environmentally friendly habits, and be able to explain how they help to preserve the environment, both locally and globally
- be able to organize a community project to help preserve the environment

Students will:

- **be able to consider careers in mathematics, science, and technology in relation to their abilities**

By the end of Grade 3, students will:

- see how mathematics, science, and technology are used in the world around them
- know about various careers in the fields of mathematics, science, and technology and be able to consider them objectively, without reference to stereotypes
- be aware of the contributions that careers in these fields make to the life of the community

- understand how mathematics, science, and technology are involved in the production of familiar items, and relate this understanding to careers in industry
- see the importance of working hard to master these disciplines

By the end of Grade 6, students will also:

- understand that careers in mathematics, science, and technology are open to anyone who is willing to prepare for them
- use their knowledge of machines, equipment, and devices as a starting point for investigating commercial production methods and related careers

By the end of Grade 9, students will also:

- be able to examine their own abilities and interests to see how they relate to the requirements of a career in mathematics, science, and technology
- be able to use statistics to identify groups of people who are underrepresented in these fields, and suggest ways to solve this inequity
- have a knowledge of mass production techniques and use this knowledge to investigate careers in industry, including those in research and development
- be motivated to set personal goals in mathematics, science, and technology

Inquiring, Reasoning, and Reporting

Students will:

- **be motivated to ask questions, and know how to look for answers and talk about their findings**

By the end of Grade 3, students will:

- be motivated to ask questions about the world around them and be able to discuss the validity of the answers
- have a positive attitude towards mathematics, science, and technology
- work confidently with concrete materials (tools, blocks, sand, etc.) while conducting investigations
- show respect for the contributions of others

By the end of Grade 6, students will also:

- be motivated to investigate their immediate environment and the wider world, and to communicate their findings to others
- be able to conduct investigations involving concrete materials (for example, make and compare CD holders made of wood, plastic, metal, and composites)

By the end of Grade 9, students will also:

- be able to do research independently and to communicate their findings in a variety of ways

Students will:

- **be able to use a variety of methods – including information technologies – to gather, analyse, and process information and to communicate their findings**

By the end of Grade 3, students will:

- use various methods (for example, observing, collecting, sketching, writing, talking, computing) to gather, analyse, and communicate information
- begin to understand the ideas of chance and probability while conducting investigations
- know how to use calculators and computer systems, including word-processing systems and databases, to gather, analyse, and process information and to solve problems
- be able to develop simple presentations, using media technology, to communicate the results of their investigations

By the end of Grade 6, students will also:

- know how to apply information appropriately
- be able to explain the ideas of chance and probability
- be able to use spreadsheet hardware and software to gather, analyse, and process information

By the end of Grade 9, students will also:

- be able to gather information from various sources, make decisions based on it, and communicate these decisions in a way that is appropriate to the intended audience
- apply the ideas of probability and statistics while conducting investigations
- use advanced computer features to gather, analyse, and process information
- develop presentations using advanced features of media technology

Students will:

- **be able to use appropriate methods of inquiry and design**

By the end of Grade 3, students will:

- be able to follow the steps in a standard scientific or technological method of inquiry

By the end of Grade 6, students will also:

- be able to use different scientific and technological methods of inquiry
- be able to retrace and repeat steps during an investigation, as needed

By the end of Grade 9, students will also:

- understand the importance of scientific and technological methods of investigation, be able to use them in a personal investigation, and be able to explain the processes to others

Students will:

- **be able to solve problems in various ways**

By the end of Grade 3, students will:

- begin to understand problem-solving methods in mathematics, science, and technology
- be able to apply these problem-solving methods to familiar situations

- be able to describe the features of their neighbourhood and the issues that affect it
- have some understanding of a design process in a simple experiment and be able to describe it using words and drawings (for example, describe the steps to be followed in designing and making a hand puppet)

By the end of Grade 6, students will also:

- be able to use different problem-solving methods to explore and solve a variety of problems, including problems related to local issues
- be able to evaluate and justify their conclusions
- be able to use a design process to identify a problem and propose a solution (for example, identify the need to repair a bicycle and outline the repair procedure to be followed)

By the end of Grade 9, students will also:

- be able to use a variety of problem-solving methods, including methods they have developed on their own
- be able to use a variety of problem-solving methods to investigate the capacity of the earth to sustain life
- be able to carry out a design project (for example, design, build, and evaluate an aquarium ecosystem)

Students will:

- **be able to make decisions responsibly and evaluate the results**

By the end of Grade 3, students will:

- understand the relationship between people and the environment in their community
- work on their own and with others to identify and explore personal and community problems
- be able to take a stand on some of the problems they have investigated

By the end of Grade 6, students will also:

- be able to investigate the relationship between people and the environment at the national and global levels, and suggest measures that could be taken in response to critical issues
- work on their own and with others to explore and make decisions about global problems

By the end of Grade 9, students will also:

- work individually and in groups to make decisions about personal, societal, and global problems

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